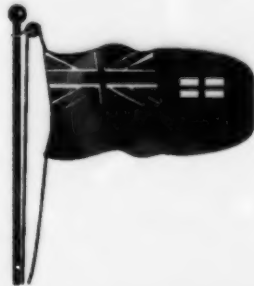


# SCIENCE AND TECHNOLOGY

## GOVERNMENT OF MANITOBA SCIENTIFIC ACTIVITIES 1998-99 & 1999-2000<sup>a</sup> SURVEY RESULTS





**SCIENTIFIC ACTIVITIES OF THE GOVERNMENT  
OF MANITOBA  
1998-99 and 1999-2000<sup>e</sup> SURVEY RESULTS**

**A REPORT PREPARED BY:**

Yvonne Tremblay  
Science and Innovation Surveys Section  
Science, Innovation and Electronic Information Division  
Statistics Canada

January, 2000





## FOREWORD

This report presents a summary of the results of an annual survey of scientific activities of the Government of Manitoba. This survey was conducted by Yvonne Tremblay of Statistics Canada under the sponsorship and with the cooperation and assistance of the Manitoba Department of Industry, Trade and Tourism.

Currently all provinces except Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick and the Territories are surveyed. In Québec, a survey of only R&D statistics is conducted by the Institut de la statistique du Québec (formerly Bureau de la statistique du Québec) and shared with Statistics Canada. Detailed results of provincial surveys remain the property and responsibility of participating provinces. Reports for the provinces surveyed are available on request from the provincial coordinator at the Department or Agency sponsoring the survey. A list of provincial co-ordinators is provided on page 82 of this report. Statistics Canada also makes available a summary service bulletin including a historical account of all scientific data available at the provincial government level in **Science Statistics**, Catalogue 88-001-XIB, Vol. 23, No. 2.

Please note that the scientific expenditures of the Industrial Technology Centre (formerly the Economic Innovation and Technology Council) in this report reflect only funding from the Manitoba government. Additional information on the ITC is available in **Science Statistics**, Catalogue No. 88-001-XIB, Vol. 23, No. 1.

Surveys of the scientific activities of provincial governments serve several purposes. They provide an essential data base for analysis and the formulation of provincial science policy. They also provide data for the development of a national aggregate R&D series. The most recent national aggregates are published by Statistics Canada in **Science Statistics** Catalogue No. 88-001-XIB Vol. 23 No. 6. The national aggregates are also needed to complete the international questionnaires for the Organization for Economic Co-operation and Development (OECD) and the United Nations Educational, Scientific and Cultural Organization (UNESCO).

Science surveys, like many other surveys, are based on respondents' interpretations of definitions and methods of calculation. The accounting records available rarely use a science-based classification. Recognizing the fact that the data are estimates, they are still a good representation of the current science expenditures and employment data for the province of Manitoba. A continuing effort has been made to improve on the quality of reporting by departments and agencies.

This report is made possible through the good will and efforts of officials of the responding departments and agencies. We would like to express special appreciation to Ron Humble and Paul Mackin of the Department of Industry, Trade and Tourism for their support and efforts in conducting this survey.



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by Department or Agency and Activity .....	18	29	40	48	62	66
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#### **The following symbols are used in this report:**

- nil or zero
- .. not available
- ... figures are not appropriate or not applicable
- e estimated figures
- r revised figures
- amount too small to be expressed

## DEFINITIONS

This report covers those scientific and technological activities which involve the generation, dissemination and application of new scientific and technological knowledge. The central activity is **research and experimental development (R&D)**. In addition, there are a number of activities closely related to R&D and referred to as **related scientific activities (RSA)**.

**R&D** is creative work undertaken on a systematic basis in order to increase the stock of scientific and technical knowledge as well as knowledge of humans, their culture and society; and the use of this knowledge to devise new applications. The central characteristic of R&D is an appreciable element of novelty and uncertainty. It requires the acquisition of knowledge and not just information. New knowledge involves the integration of newly acquired information into existing hypotheses, the formulation and testing of new hypotheses or the re-evaluation of existing observations.

**Related scientific activities** include education support, technical surveys, statistical surveys, information services, special services and studies, and museum services. Education support and museum services are self-explanatory.

**Technical surveys** are activities directed towards the exploration and systematic description of the earth and its natural resources. The activities include gathering, processing, collating and analyzing data on natural phenomena except when part of a research project or a museum service. The preparation of maps and survey reports, their printing and their cataloguing are also included.

**Statistical surveys** are activities directed towards the collecting, processing and disseminating of statistics on people and their economic and social activities. Included are the development of technical methodology, statistical analysis and vital statistics.

**Information services** are activities directed to recording, classifying, translating and disseminating scientific and technological information (**Technology Transfer**) as well as information resulting from R&D in the social sciences or required in support of such R&D. Included are the operations of scientific and technical libraries, specialized libraries and archives, the publication of scientific journals and bibliographies, and the organizing of scientific conferences. Grants for the publication of scholarly works are also included.

**Special services and studies** in the natural sciences are activities directed towards the establishment of national and provincial standards for materials, devices, products and processes; the calibration of secondary standards; non-routine quality testing; feasibility studies and demonstration projects. In the social sciences, special services and studies are systematic investigations carried out in order to provide information needed for planning or policy formulation, including feasibility studies, and demonstration projects.

There are two different **science types** that are identified by this survey, the natural sciences and the social sciences and humanities.

**Natural sciences** consist of disciplines concerned with understanding, exploring, developing or utilizing the natural world. Included are the engineering, mathematical, environmental, life and physical sciences.

**Social sciences and humanities** include all disciplines involving the study of human actions and conditions and the social, economic and institutional mechanisms affecting humans. Included are such disciplines as anthropology, business administration and commerce, communications, criminology, demography, economics, geography, history, languages, literature and linguistics, law, library services, philosophy, political sciences, psychology, religious studies, social work, sociology and urban and regional studies.

Five **performing sectors** are identified besides the Economic Innovation and Technology Council (formerly called the Manitoba Research Council).

**Intramural** refers to units of the provincial government performing scientific activities usually within their own facilities.

**Business enterprise** consists largely of private corporations but also includes crown corporations with a commercial function (e.g. power utilities) and industrial research institutes not controlled by another institution. Consultants providing scientific and engineering services are also included.

**Higher education** cover post-secondary educational institutions and affiliated teaching and research facilities. Also included are industrial research institutes affiliated with a university.

**Hospitals and health organizations** are health organizations such as the Heart Foundation and hospitals which do not belong to the universities sector.

**Other** includes non-resident performers of scientific activities funded by the provincial government, as well as recipients not covered elsewhere such as the federal government, other provincial departments, individuals and foreign.

Expenditures are either current or capital. **Current expenditures** include costs of personnel, transportation and communications, information, professional and special services, rentals, purchased repair and upkeep, utilities, materials and supplies. **Capital expenditures** are incurred for the construction and acquisition of land, buildings, machinery and equipment. **Total expenditures** comprise current plus capital expenditures.

**Departmental Personnel** data are requested by activity and category of employment in full-time equivalent. A person working entirely full-time on a scientific activity is counted as one person-year. Those working only part-time on scientific activities are considered as a fraction of a person-year, according to their involvement. Both permanent and non-permanent employees are included.

**Objectives of expenditures** are requested by activity and performer (intramural and extramural). The objectives listed are intended to cover the major areas of current economic, political and technological interest. Data are to be reported under the objective which is primary to that expenditure. Generally, the objective selected should be consistent with the stated objectives of the reporting department.



## HIGHLIGHTS

During the 1998-99 fiscal year the Manitoba Government expenditures on scientific activities were \$49.1 million. This is 0.9% of the total budgetary expenditures of the government for that year. The scientific activities estimated for 1999-2000 are \$45.8 million or 0.8% of the total budgetary expenditures.

**TEXT TABLE I. Manitoba Government Expenditures, by Selected Department or Agency, 1998-99 and 1999-2000 Estimates**

Department or agency	1998-99			1999-2000(e)		
	Total expenditures(1)	Scientific expenditures	%	Estimated total expenditures(1)	Scientific expenditures	%
	in millions of dollars		percent	in millions of dollars		percent
Agriculture	99.1	9.4	9.5	113.0	3.3	2.9
Culture, Heritage and Citizenship	51.8	4.3	8.3	58.3	4.5	7.7
Education and Training	1,130.0	7.8	0.7	1,179.0	7.9	0.7
Energy and Mines	14.4	4.5	31.3	14.6	4.8	32.9
Environment	13.9	2.1	15.1	15.1	2.1	13.9
Health(2)	1,925.3	4.8	0.3	2,119.3	5.0	0.2
Highways and Transportation	232.8	2.3	1.0	238.8	2.5	1.0
Industry, Trade and Tourism	40.1	6.4	16.0	40.4	8.0	19.8
Natural Resources	136.8	4.1	3.0	154.3	4.3	2.8
Other	2,145.5	3.4	0.2	2,113.0	3.4	0.2
<b>Total</b>	<b>5,789.7</b>	<b>49.1</b>	<b>0.9</b>	<b>6,045.8</b>	<b>45.8</b>	<b>0.8</b>

(1) "Manitoba Estimates of Expenditure, 1999"

(2) Includes the Manitoba Health Research Council

In 1998-99 the Manitoba Government's total scientific expenditures increased by 23.4%. The department of Agriculture, for fiscal year 1998-99, granted a significant amount under the Agri-Food Research & Development Initiative (ARDI) to various researchers at the University of Manitoba. A decrease of 6.7% has been estimated for 1999-2000.

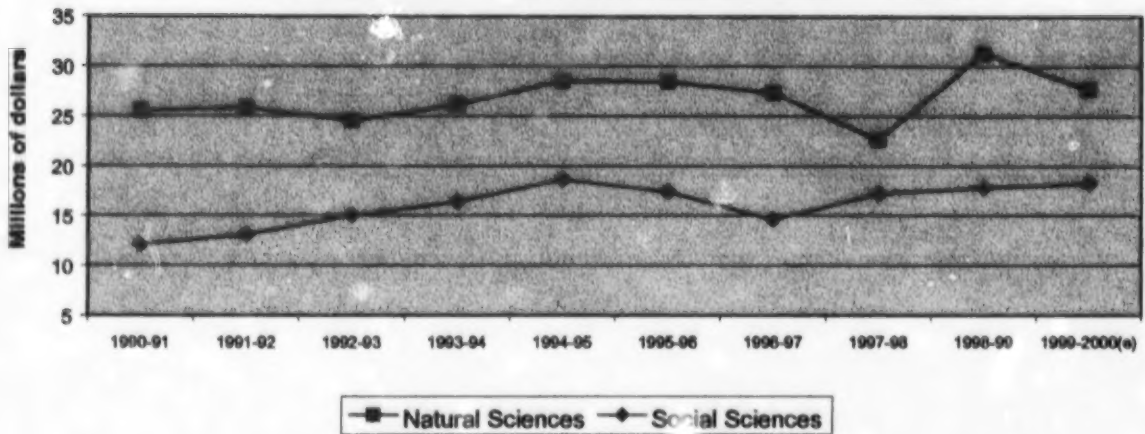
**TEXT TABLE II. Total Expenditures on Scientific Activities, by Science Type, 1990-91 to 1999-2000 Estimates**

Science Type	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000(e)
	in millions of dollars									
Natural	25.5	25.8	24.5	26.1	28.5	28.4	27.3	22.6	31.3	27.6
Social	12.1	13.1	15.0	16.4	18.6	17.4	14.6	17.2	17.8	18.2
<b>Total</b>	<b>37.6</b>	<b>38.9</b>	<b>39.5</b>	<b>42.5</b>	<b>47.1</b>	<b>45.8</b>	<b>41.9</b>	<b>39.8</b>	<b>49.1</b>	<b>45.8</b>

Of the total 1998-99 Manitoba Government science expenditures, 64% (\$31.3 million) are for natural science activities. Research and development accounts for \$14.4 million (46%) of this amount; the remaining \$16.9 million (53%) are related scientific activities. Major support of research and development comes from the Department of Industry, Trade and Tourism and the Department of Health. The major related scientific activity is technical surveys, supported by the departments of Natural Resources and Energy and Mines.

Social science activities account for 36% (\$17.8 million) of the total 1998-99 Manitoba Government science expenditures. Ninety-six percent of this is spent on related scientific activities. The departments of Health, Culture, Heritage and Citizenship and Education and Training are the major supporters of social science activities.

**Chart 1. Total Expenditures on Scientific Activities,  
by Science Type, 1990-91 to 1999-2000(e)**



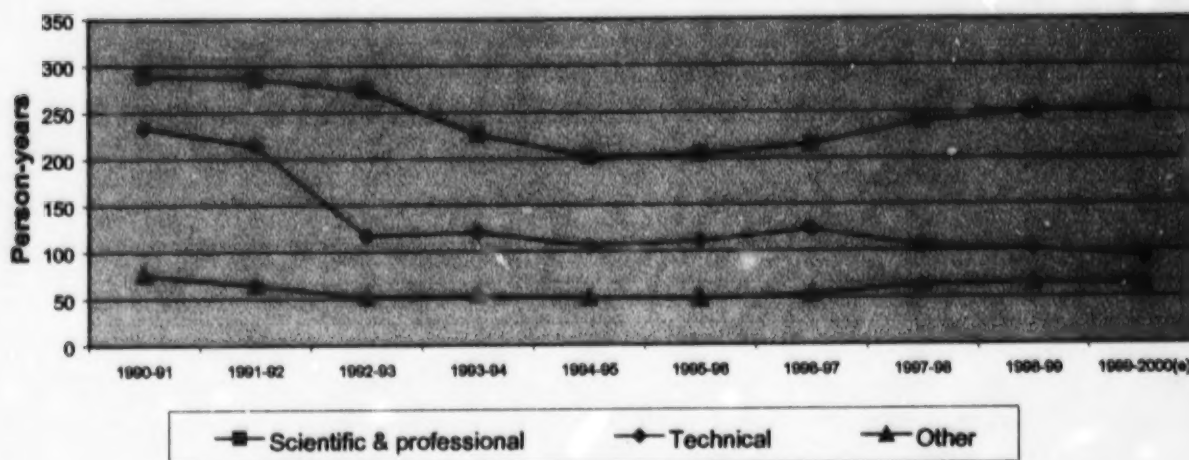
**TEXT TABLE III. Total Expenditures on Scientific Activities, by Sector of Performance, 1998-99**

Activity	Intramural	Business Enterprise	Higher Education	Hospitals and health organizations	Industrial Technology Centre	Other	Total
in millions of dollars							
Research and development	1.4	0.5	6.3	4.0	2.0	0.8	15.1
Related scientific activities	27.0	2.2	0.1	1.9	0.9	2.0	34.0
<b>Total</b>	<b>28.4</b>	<b>2.7</b>	<b>6.4</b>	<b>5.9</b>	<b>2.9</b>	<b>2.8</b>	<b>40.1</b>

In 1998-99 the Provincial government itself performed 58% of the total scientific activities. The higher education sector was the largest recipient of provincial R&D expenditures, accounting for 42% of the total \$15.1 million reported. The Provincial government performed \$27.0 million on related scientific activities which represented 79% of the total \$34.0 million.



**Chart 2. Departmental Personnel Engaged in S&T,  
1990-91 to 1999-2000(e)**



**TEXT TABLE IV. Manitoba Personnel Engaged in Scientific Activities, by Selected Department or Agency and Category, 1998-99**

Department or agency	Scientific and Professional	Technical	Other	Total Personnel
person-years				
Agriculture	13	2	1	16
Culture, Heritage and Citizenship	36	6	19	61
Education and Training	81	18	15	114
Energy and Mines	34	19	11	64
Environment	10	4	1	15
Highways and Transportation	4	17	7	28
Industry, Trade and Tourism	10	-	4	14
Natural Resources	17	32	1	50
Other	45	3	6	54
<b>Total</b>	<b>250</b>	<b>101</b>	<b>65</b>	<b>416</b>

Of the total Manitoba government employees, 416 person-years are devoted to science activities. The scientific and professional category accounts for 60%, technical personnel constitute 24% and other support staff fill the remaining 16%.

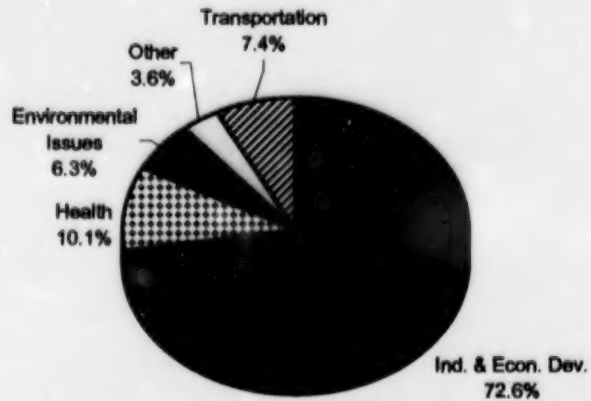
The objective with the largest expenditures in 1998-99 is Industrial and economic development (\$24.8 million) followed by Social development and related areas (\$14.0 million) and Health (\$5.3 million).

**TEXT TABLE V. Objectives of Total Science Expenditures, 1998-99**

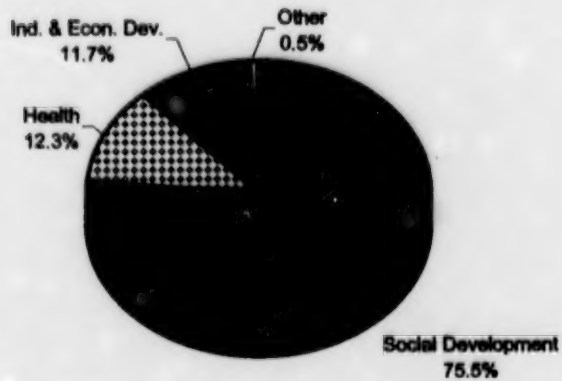
Department or agency	Advancement of science	Environ- mental issues	Health	Industrial and economic development	Social develop- ment and related areas	Trans- portation	Other	Total
in millions of dollars								
Agriculture	-	-	-	9.4	-	-	-	9.4
Culture, Heritage and Citizenship	-	-	-	-	4.1	-	-	4.3
Education and Training	-	-	-	-	7.8	-	-	7.8
Energy and Mines	-	-	-	4.3	-	-	0.2	4.5
Environment	-	2.0	-	-	-	-	0.1	2.1
Health(1)	-	-	4.8	-	-	-	-	4.8
Highways and Transportation	-	-	-	-	-	2.3	-	2.3
Industry, Trade and Tourism	-	-	-	6.4	-	-	-	6.4
Labour	0.1	-	0.5	-	0.7	-	0.1	1.4
Natural Resources	-	-	-	3.8	0.3	-	-	4.1
Other	0.1	-	-	0.9	1.1	-	0.1	2.0
<b>Total</b>	<b>0.2</b>	<b>2.0</b>	<b>5.3</b>	<b>24.8</b>	<b>14.0</b>	<b>2.3</b>	<b>0.5</b>	<b>49.1</b>

(1) Includes the Manitoba Health Research Council

**Chart 3. Objectives of Natural Science Activities,  
1998-1999**



**Objectives of Social Science Activities,  
1998-1999**





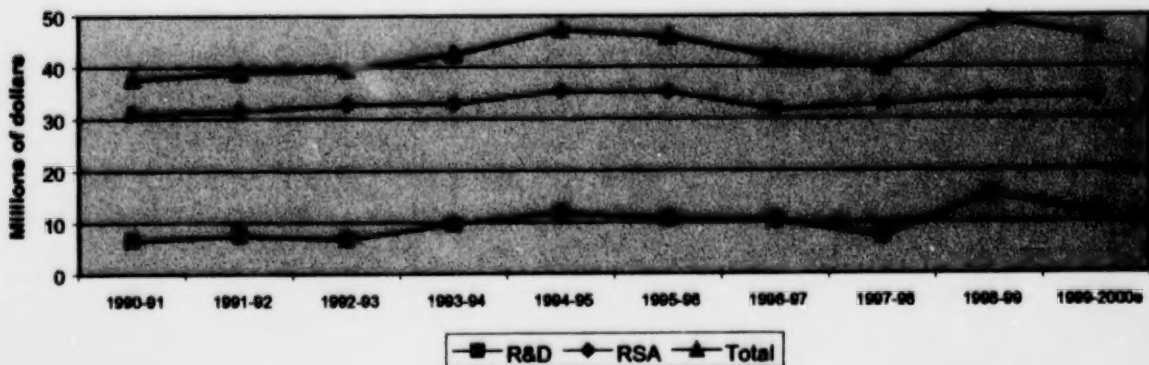
## **TOTAL SCIENCES**



**TABLE 1. Total Expenditures by Activity, 1990-91 to 1999-2000 Estimates**

Activity	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
in thousands of dollars										
<b>Research and Development (R&amp;D)</b>										
Current expenditures:										
In-house R&D	848	826	687	525	431	235	260	906	1,094	1,202
R&D contracts	250	225	100	344	747	497	151	307	163	217
R&D grants and contributions	3,943	4,746	4,267	7,299	9,349	8,675	8,529	4,909	12,809	9,138
Research fellowships	1,062	1,211	1,345	1,134	963	889	965	660	753	872
Admin of extramural R&D programs	370	370	257	347	274	332	278	348	267	243
Sub-total current R&D	6,473	7,378	6,656	9,649	11,764	10,608	10,183	7,130	15,066	11,672
Capital expenditures	3	1	10	-	-	-	-	-	1	2
<b>Total R&amp;D</b>	<b>6,476</b>	<b>7,379</b>	<b>6,666</b>	<b>9,649</b>	<b>11,764</b>	<b>10,608</b>	<b>10,183</b>	<b>7,130</b>	<b>15,067</b>	<b>11,674</b>
<b>Related Scientific activities (RSA)</b>										
Current expenditures:										
Admin of extramural RSA programs	69	390	336	41	41	33	30	42	79	63
Sub-total current RSA	30,916	31,223	32,545	32,698	34,883	34,899	31,423	32,574	33,939	33,998
Capital expenditures	202	328	229	188	467	318	320	129	56	145
<b>Total RSA</b>	<b>31,118</b>	<b>31,551</b>	<b>32,774</b>	<b>32,886</b>	<b>35,350</b>	<b>35,217</b>	<b>31,743</b>	<b>32,703</b>	<b>33,995</b>	<b>34,143</b>
<b>Total</b>	<b>37,594</b>	<b>38,930</b>	<b>39,440</b>	<b>42,535</b>	<b>47,114</b>	<b>45,825</b>	<b>41,926</b>	<b>39,833</b>	<b>49,062</b>	<b>45,817</b>

**Chart 4. Total Science Expenditures, by Activity, 1990-91 to 1999-2000(e)**



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**TABLE 2. Total Expenditures by Department or Agency, 1990-91 to 1999-2000 Estimates**

Department or agency	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
in thousands of dollars										
Executive Council	...	...	497	1,789	1,375	...	...	...	...	...
Government Services	48	38	...	...	...	...	...	...	...	...
Manitoba Health Research Council (1)	2,806	2,756	2,707	...	...	...	...	...	...	...
<b>Total</b>	<b>37,594</b>	<b>38,930</b>	<b>39,440</b>	<b>42,535</b>	<b>47,114</b>	<b>45,825</b>	<b>41,926</b>	<b>39,833</b>	<b>49,082</b>	<b>45,817</b>

(1) As of 1993-94, Health values include the Manitoba Health Research Council

**TABLE 3. Total Expenditures by Performing Sector, 1990-91 to 1999-2000 Estimates**

Performing sector	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
in thousands of dollars										
Intramural	26,634	26,758	26,925	23,746	21,953	22,374	25,889	26,872	28,424	29,456
Business Enterprise	702	1,008	1,455	4,079	5,142	4,610	5,355	3,032	2,717	1,658
Higher Education	4,189	4,886	5,257	5,709	4,515	2,771	2,751	3,224	6,382	3,386
Hospitals and health organizations	459	456	418	1,461	4,926	3,701	3,307	2,245	5,874	5,500
Industrial Technology Centre	2,724	2,540	2,947	4,335	5,911	5,709	2,767	2,208	2,930	3,375
Other	2,886	3,282	2,438	3,205	4,667	6,660	1,857	2,252	2,755	2,442
<b>Total</b>	<b>37,594</b>	<b>38,930</b>	<b>39,440</b>	<b>42,535</b>	<b>47,114</b>	<b>45,825</b>	<b>41,926</b>	<b>39,833</b>	<b>49,082</b>	<b>45,817</b>

**TABLE 4. Total Expenditures on R&D, by Performing Sector, 1990-91 to 1999-2000 Estimates**

Performing sector	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
in thousands of dollars										
Intramural	1,236	1,207	954	975	810	622	564	1,266	1,442	1,573
Business Enterprise	485	600	1,264	3,570	4,290	4,123	3,612	903	522	162
Higher Education	3,787	3,915	3,440	3,155	3,344	2,641	2,641	3,124	6,273	3,286
Hospitals and health organizations	459	126	418	536	1,568	1,851	1,457	395	4,024	3,650
Industrial Technology Centre	13	25	202	419	504	344	1,724	1,174	2,043	2,524
Other	496	1,506	388	994	1,248	1,027	185	268	783	479
<b>Total</b>	<b>6,476</b>	<b>7,379</b>	<b>6,666</b>	<b>9,649</b>	<b>11,764</b>	<b>10,608</b>	<b>10,183</b>	<b>7,130</b>	<b>15,087</b>	<b>11,674</b>

**TABLE 5. Total Expenditures on R&D, by Department or Agency, 1990-91 to 1999-2000 Estimates**

Department or agency	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
in thousands of dollars										
Agriculture	1,206	1,176	973	965	978	636	562	315	2,466	1,602
Culture, Heritage and Communities	282	226	318	84	84	86	86	89	87	86
Education and Training	...	...	...	186	280	789	186	280	149	180
Energy and Mines	13	78	80	120	214	488	81	81	...	...
Environment	135	122	112	87	119	78	81	42	23	20
Executive Council	...	...	497	1,789	1,308	...	...	...	...	...
Health (1)	...	...	...	2,466	2,466	1,308	2,466	2,466	2,466	2,466
Highways and Transportation	...	...	...	...	...	...	...	...	...	...
Industry, Trade and Technology	1,273	2,267	1,267	1,267	1,267	1,267	1,267	1,267	1,267	1,267
Justice	...	...	...	...	...	...	...	...	...	...
Labour	...	...	...	...	...	...	...	...	...	...
Manitoba Council of Economic Development	...	...	...	...	...	...	...	...	...	...
Manitoba Health Research Council (1)	2,806	2,756	2,707	...	...	...	...	...	...	...
Manitoba Investment	189	120	210	...	277	...	...	...	...	...
Other	...	...	...	...	...	...	...	...	...	...
<b>Total</b>	<b>6,476</b>	<b>7,379</b>	<b>6,666</b>	<b>9,649</b>	<b>11,764</b>	<b>10,608</b>	<b>10,183</b>	<b>7,130</b>	<b>15,087</b>	<b>11,674</b>

(1) As of 1993-94, Health values include the Manitoba Health Research Council

Department or Agency with no R&D expenditures

**TABLE 2. Total Expenditures by Department or Agency, 1990-91 to 1999-2000 Estimates**

Department or agency	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
in thousands of dollars										
Agriculture	3,313	2,758	2,372	2,587	3,110	3,269	3,165	3,285	9,440	3,324
Consumer and Corporate Affairs	137	136	136	144	151	139	183	185	194	202
Culture, Heritage and Citizenship	2,945	2,884	3,877	3,675	3,789	3,933	3,932	3,917	4,256	4,529
Education and Training	2,696	2,903	3,298	2,558	2,210	3,016	4,981	7,658	7,775	7,898
Energy and Mines	4,067	3,983	3,754	3,087	3,753	3,409	4,596	4,504	4,541	4,825
Environment	2,344	2,562	2,809	2,752	2,483	2,500	2,141	2,000	2,052	2,053
Executive Council	...	...	497	1,789	1,375	...	...	...	...	...
Family Services	1,258	1,160	1,134	1,200	1,041	993	319	436	312	86
Government Services	48	38	...	...	...	...	...	...	...	...
Health (1)	1,889	3,171	3,531	7,894	10,461	9,834	5,131	4,312	4,773	4,998
Highways and Transportation	48	49	1,009	1,018	1,306	2,055	2,684	2,766	2,312	2,522
Industry, Trade and Tourism	5,448	6,458	7,029	8,663	9,725	10,118	8,306	4,316	6,386	7,954
Justice	181	212	482	461	437	420	409	415	416	443
Labour	1,173	682	672	775	714	660	696	1,407	1,449	1,497
Manitoba Bureau of Statistics	485	443	524	566	567	566	669	770	817	920
Manitoba Health Research Council (1)	2,806	2,756	2,707	...	...	...	...	...	...	...
Natural Resources	8,391	8,068	5,212	5,025	5,585	4,525	4,416	3,629	4,124	4,255
Rural Development	220	667	307	261	261	261	168	100	100	100
Urban Affairs	145	-	90	100	146	127	130	133	135	211
<b>Total</b>	<b>37,594</b>	<b>38,930</b>	<b>39,440</b>	<b>42,535</b>	<b>47,114</b>	<b>45,825</b>	<b>41,926</b>	<b>39,833</b>	<b>49,082</b>	<b>45,817</b>

(1) As of 1993-94, Health values include the Manitoba Health Research Council

Departments or Agencies as of 1998-99 fiscal year

**TABLE 3. Total Expenditures by Performing Sector, 1990-91 to 1999-2000 Estimates**

Performing sector	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
in thousands of dollars										
Intramural	26,634	26,758	26,925	23,746	21,953	22,374	25,889	26,872	28,424	29,456
Business Enterprise	702	1,008	1,455	4,079	5,142	4,610	5,355	3,032	2,717	1,658
Higher Education	4,189	4,886	5,257	5,709	4,515	2,771	2,751	3,224	6,382	3,386
Hospitals and health organizations	459	456	418	1,461	4,926	3,701	3,307	2,245	5,874	5,500
Industrial Technology Centre	2,724	2,540	2,947	4,335	5,911	5,709	2,767	2,208	2,930	3,375
Other	2,886	3,282	2,438	3,205	4,667	6,660	1,857	2,252	2,755	2,442
<b>Total</b>	<b>37,594</b>	<b>38,930</b>	<b>39,440</b>	<b>42,535</b>	<b>47,114</b>	<b>45,825</b>	<b>41,926</b>	<b>39,833</b>	<b>49,082</b>	<b>45,817</b>

**TABLE 4. Total Expenditures on R&D, by Performing Sector, 1990-91 to 1999-2000 Estimates**

Performing sector	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
in thousands of dollars										
Intramural	1,236	1,207	954	975	810	622	564	1,266	1,442	1,573
Business Enterprise	485	600	1,264	3,570	4,290	4,123	3,612	903	522	162
Higher Education	3,787	3,915	3,440	3,155	3,344	2,641	2,641	3,124	6,273	3,286
Hospitals and health organizations	459	126	418	536	1,568	1,851	1,457	395	4,024	3,650
Industrial Technology Centre	13	25	202	419	504	344	1,724	1,174	2,043	2,524
Other	496	1,506	388	994	1,248	1,027	185	268	783	479
<b>Total</b>	<b>6,476</b>	<b>7,379</b>	<b>6,666</b>	<b>9,649</b>	<b>11,764</b>	<b>10,608</b>	<b>10,183</b>	<b>7,130</b>	<b>15,087</b>	<b>11,674</b>

**TABLE 5. Total Expenditures on R&D, by Department or Agency, 1990-91 to 1999-2000 Estimates**

Department or agency	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
in thousands of dollars										
Agriculture	1,205	1,176	975	988	916	939	922	918	6,455	1,052
Culture, Heritage and Citizenship	262	226	215	94	94	93	93	93	97	99
Education and Training	...	...	...	136	500	749	125	348	149	185
Energy and Mines	13	79	50	123	245	185	81	54	-	-
Environment	135	132	112	67	116	70	61	48	33	53
Executive Council	...	...	497	1,789	1,308	...	...	...	...	...
Health (1)	...	...	...	2,457	3,288	3,506	3,015	2,412	2,873	3,098
Highways and Transportation	48	49	44	44	66	65	63	63	63	63
Industry, Trade and Tourism	1,875	2,841	1,247	3,288	4,357	4,876	5,718	2,419	4,600	6,204
Justice	...	...	...	...	...	...	...	...	...	...
Labour	...	...	...	...	...	...	...	650	673	673
Manitoba Bureau of Statistics	...	...	...	...	...	...	...	...	...	...
Manitoba Health Research Council (1)	2,806	2,756	2,707	...	...	...	...	...	...	...
Natural Resources	132	120	819	663	874	125	125	125	144	174
Urban Affairs	...	...	...	...	...	...	...	...	-	73
<b>Total</b>	<b>6,476</b>	<b>7,379</b>	<b>6,666</b>	<b>9,649</b>	<b>11,764</b>	<b>10,608</b>	<b>10,183</b>	<b>7,130</b>	<b>15,087</b>	<b>11,674</b>

(1) As of 1993-94, Health values include the Manitoba Health Research Council  
Departments or Agencies as of 1998-99 fiscal year

**TABLE 6. Personnel Engaged in Scientific Activities by Activity and Category, 1990-91 to 1999-2000 Estimates**

Activity and category	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
person-years										
<b>Research and development</b>										
Scientific and professional	15	16	9	9	12	6	5	15	17	21
Technical	-	-	10	7	4	1	2	4	2	2
Other	2	2	-	-	-	-	-	1	1	1
Sub-total R&D personnel	17	18	19	16	16	7	7	20	20	24
<b>Administration of R&amp;D extramural programs</b>										
Scientific and professional	...	...	...	7	5	6	5	4	3	3
Technical	...	...	...	-	-	-	-	-	1	-
Other	...	...	...	-	-	-	-	3	3	2
Sub-total R&D AEP personnel	...	...	...	7	5	6	5	7	7	5
<b>Related scientific activities</b>										
Scientific and professional	267	258	253	210	185	192	205	220	230	230
Technical	232	213	107	114	102	110	121	101	98	91
Other	71	60	50	51	48	48	52	58	61	59
Sub-total RSA personnel	570	531	410	375	335	350	378	379	389	380
<b>Administration of RSA extramural programs</b>										
Scientific and professional	...	...	...	-	-	-	-	-	-	-
Technical	...	...	...	-	-	-	-	-	-	-
Other	...	...	...	2	2	1	1	1	-	1
Sub-total RSA AEP personnel	...	...	...	2	2	1	1	1	-	1
<b>Administration of total extramural programs (1)</b>										
Scientific and professional	7	12	11	...	...	...	...	...	...	...
Technical	1	1	-	...	...	...	...	...	...	...
Other	2	2	1	...	...	...	...	...	...	...
Sub-total total AEP personnel	10	15	12	...	...	...	...	...	...	...
<b>Total science activities</b>										
Scientific and professional	289	286	273	226	202	204	215	239	250	254
Technical	233	214	117	121	106	111	123	105	101	93
Other	75	64	51	53	50	49	53	63	65	63
<b>Total science personnel</b>	<b>597</b>	<b>564</b>	<b>441</b>	<b>400</b>	<b>358</b>	<b>364</b>	<b>391</b>	<b>407</b>	<b>416</b>	<b>410</b>

(1) From 1990-91 to 1992-93 the person-years devoted to the administration of extramural programs were not separated by activity and therefore are shown under the heading "Administration of total extramural programs".

**TABLE 7. Total Expenditures by Department or Agency and Source of Funds, 1998-99**

Department or agency	Departmental budget	Transfers from other Departments	Transfers from federal government	From trust funds	From business enterprises	From other sources	Total
in thousands of dollars							
Agriculture	9,310	-	-	-	-	130	9,440
Consumer and Corporate Affairs	194	-	-	-	-	-	194
Culture, Heritage and Citizenship	4,097	-	5	43	83	28	4,256
Education and Training	7,775	-	-	-	-	-	7,775
Energy and Mines	4,286	-	-	105	150	-	4,541
Environment	2,019	-	-	-	-	33	2,052
Family Services	233	30	49	-	-	-	312
Health (1)	4,400	54	173	-	33	113	4,773
Highways and Transportation	2,312	-	-	-	-	-	2,312
Industry, Trade and Tourism	6,386	-	-	-	-	-	6,386
Justice	416	-	-	-	-	-	416
Labour	1,449	-	-	-	-	-	1,449
Manitoba Bureau of Statistics	817	-	-	-	-	-	817
Natural Resources	4,124	-	-	-	-	-	4,124
Rural Development	100	-	-	-	-	-	100
Urban Affairs	135	-	-	-	-	-	135
<b>Total</b>	<b>48,053</b>	<b>84</b>	<b>227</b>	<b>148</b>	<b>266</b>	<b>304</b>	<b>49,082</b>

(1) Includes the Manitoba Health Research Council

**TABLE 8. Total Expenditures by Activity and Performing Sector, 1998-99**

Activity	Intramural	Business Enterprise	Higher Education	Hospitals and health organizations	Industrial Technology Centre	Other	Total
in thousands of dollars							
<b>Research and development (R&amp;D)</b>							
Current expenditures:							
In-house R&D	1,094	...	...	...	...	...	1,094
R&D contracts	80	75	-	-	-	8	163
R&D grants and contributions	...	447	5,681	3,863	2,043	775	12,809
Research fellowships	-	-	592	161	-	-	753
Admin of extramural R&D programs	267	...	...	...	...	...	267
Sub-total current R&D	1,441	522	6,273	4,024	2,043	783	15,086
Capital expenditures	1	...	...	...	...	...	1
<b>Total R&amp;D</b>	<b>1,442</b>	<b>522</b>	<b>6,273</b>	<b>4,024</b>	<b>2,043</b>	<b>783</b>	<b>15,087</b>
<b>Related scientific activities (RSA)</b>							
Current expenditures	26,847	2,195	109	1,850	-	1,972	32,973
Admin of extramural RSA programs	79	...	...	...	...	...	79
Sub-total current RSA	26,926	2,195	109	1,850	-	1,972	33,052
Capital expenditures	56	...	...	...	...	...	56
<b>Total RSA</b>	<b>26,982</b>	<b>2,195</b>	<b>109</b>	<b>1,850</b>	<b>887</b>	<b>1,972</b>	<b>33,995</b>
<b>Total</b>	<b>28,424</b>	<b>2,717</b>	<b>6,382</b>	<b>5,874</b>	<b>2,930</b>	<b>2,755</b>	<b>49,082</b>



**TABLE 9. Total Expenditures by Department or Agency and Performing Sector, 1998-99**

Department or agency	Intramural	Business Enterprise	Higher Education	Hospitals and health organizations	Industrial Technology Centre	Other	Total
in thousands of dollars							
Agriculture	1,150	1,277	3,983	1,500	20	1,510	9,440
Consumer and Corporate Affairs	194	-	-	-	-	-	194
Culture, Heritage and Citizenship	4,121	83	-	-	-	52	4,256
Education and Training	7,187	75	-	-	-	513	7,775
Energy and Mines	4,541	-	-	-	-	-	4,541
Environment	1,012	1,010	-	-	-	30	2,052
Family Services	213	99	-	-	-	-	312
Health (1)	380	-	1,889	2,374	-	130	4,773
Highways and Transportation	2,249	63	-	-	-	-	2,312
Industry, Trade and Tourism	881	90	397	2,000	2,910	108	6,386
Justice	416	-	-	-	-	-	416
Labour	1,449	-	-	-	-	-	1,449
Manitoba Bureau of Statistics	817	-	-	-	-	-	817
Natural Resources	3,679	20	13	-	-	412	4,124
Rural Development	-	-	100	-	-	-	100
Urban Affairs	135	-	-	-	-	-	135
<b>Total</b>	<b>28,424</b>	<b>2,717</b>	<b>6,382</b>	<b>5,874</b>	<b>2,930</b>	<b>2,755</b>	<b>49,082</b>

(1) Includes the Manitoba Health Research Council

**TABLE 10. Total Expenditures by Department or Agency and Activity, 1998-99**

Department or agency	Research and development			Related scientific activities			Total
	=====			=====			
	Current	AEP(1)	Capital	Current	AEP(1)	Capital	
in thousands of dollars							
Agriculture	6,455	-	-	2,985	-	-	9,440
Consumer and Corporate Affairs	-	-	-	194	-	-	194
Culture, Heritage and Citizenship	97	-	-	4,122	-	37	4,256
Education and Training	75	74	-	7,626	-	-	7,775
Energy and Mines	-	-	-	4,532	-	9	4,541
Environment	30	3	-	2,009	-	10	2,052
Family Services	-	-	-	296	16	-	312
Health (2)	2,812	60	1	1,900	-	-	4,773
Highways and Transportation	63	-	-	2,249	-	-	2,312
Industry, Trade and Tourism	4,470	130	-	1,756	30	-	6,386
Justice	-	-	-	416	-	-	416
Labour	673	-	-	776	-	-	1,449
Manitoba Bureau of Statistics	-	-	-	817	-	-	817
Natural Resources	144	-	-	3,980	-	-	4,124
Rural Development	-	-	-	100	-	-	100
Urban Affairs	-	-	-	102	33	-	135
Total	14,819	267	1	33,860	79	56	49,082

(1) Administration of extramural programs

(2) Includes the Manitoba Health Research Council

**TABLE 11. Total Expenditures on R&D by Department or Agency and Performing Sector, 1998-99**

Department or agency	Intramural	Business Enterprise	Higher Education	Hospitals and health organizations	Industrial Technology Centre	Other	Total
in thousands of dollars							
Agriculture	8	384	3,974	1,500	20	569	6,455
Consumer and Corporate Affairs	-	-	-	-	-	-	-
Culture, Heritage and Citizenship	93	-	-	-	-	4	97
Education and Training	74	75	-	-	-	-	149
Energy and Mines	-	-	-	-	-	-	-
Environment	3	-	-	-	-	30	33
Family Services	-	-	-	-	-	-	-
Health (1)	330	-	1,889	524	-	130	2,873
Highways and Transportation	-	63	-	-	-	-	63
Industry, Trade and Tourism	130	-	397	2,000	2,023	50	4,600
Justice	-	-	-	-	-	-	-
Labour	673	-	-	-	-	-	673
Manitoba Bureau of Statistics	-	-	-	-	-	-	-
Natural Resources	131	-	13	-	-	-	144
Rural Development	-	-	-	-	-	-	-
Urban Affairs	-	-	-	-	-	-	-
<b>Total</b>	<b>1,442</b>	<b>522</b>	<b>6,273</b>	<b>4,024</b>	<b>2,043</b>	<b>783</b>	<b>15,087</b>

(1) Includes the Manitoba Health Research Council

**TABLE 12. Intramural Expenditures by Department or Agency and Type of Expenditure, 1998-99**

Department or agency	Current expenditures		Capital expenditures	Total
	Personnel costs	Other costs		
in thousands of dollars				
Agriculture	808	342	-	1,150
Consumer and Corporate Affairs	167	27	-	194
Culture, Heritage and Citizenship	2,621	1,463	37	4,121
Education and Training	5,700	1,487	-	7,187
Energy and Mines	3,000	1,532	9	4,541
Environment	771	231	10	1,012
Family Services	206	7	-	213
Health (1)	315	64	1	380
Highways and Transportation	1,480	769	-	2,249
Industry, Trade and Tourism	716	165	-	881
Justice	269	147	-	416
Labour	989	460	-	1,449
Manitoba Bureau of Statistics	568	249	-	817
Natural Resources	2,608	1,071	-	3,679
Rural Development	-	-	-	-
Urban Affairs	102	33	-	135
Total	20,320	8,047	57	28,424

(1) Includes the Manitoba Health Research Council



**TABLE 13. Personnel Engaged in Scientific Activities by Department or Agency and Activity, 1998-99**

Department or agency	Intramural scientific activities							
	=====							
	Scientific & Professional R&D	RSA	Technical R&D	RSA	Other R&D	RSA	Total R&D	RSA
	person-years							
Agriculture	-	13	-	2	-	1	-	16
Consumer and Corporate Affairs	-	2	-	-	-	1	-	3
Culture, Heritage and Citizenship	2	34	-	6	-	19	2	59
Education and Training	-	80	-	17	-	15	-	112
Energy and Mines	-	34	-	19	-	11	-	64
Environment	-	10	-	4	-	1	-	15
Family Services	-	4	-	-	-	-	-	4
Health (1)	7	1	-	-	-	-	7	1
Highways and Transportation	-	4	-	17	-	7	-	28
Industry, Trade and Tourism	-	9	-	-	-	1	-	10
Justice	-	4	-	1	-	1	-	6
Labour	6	8	-	2	1	2	7	12
Manitoba Bureau of Statistics	-	10	-	-	-	1	-	11
Natural Resources	2	15	2	30	-	1	4	46
Rural Development	-	-	-	-	-	-	-	-
Urban Affairs	-	2	-	-	-	-	-	2
<b>Total</b>	<b>17</b>	<b>230</b>	<b>2</b>	<b>98</b>	<b>1</b>	<b>61</b>	<b>20</b>	<b>389</b>

(1) Includes the Manitoba Health Research Council

**TABLE 13. Personnel Engaged in Scientific Activities by Department or Agency and Activity, 1998-99 - Continued**

Department or agency	Administration of extramural programs							
	=====							
	Scientific & Professional R&D	RSA	Technical R&D	RSA	Other R&D	RSA	Total R&D	RSA
	person-years							
Agriculture	-	-	-	-	-	-	-	-
Consumer and Corporate Affairs	-	-	-	-	-	-	-	-
Culture, Heritage and Citizenship	-	-	-	-	-	-	-	-
Education and Training	1	-	1	-	-	-	2	-
Energy and Mines	-	-	-	-	-	-	-	-
Environment	-	-	-	-	-	-	-	-
Family Services	-	-	-	-	-	-	-	-
Health (1)	1	-	-	-	-	-	1	-
Highways and Transportation	-	-	-	-	-	-	-	-
Industry, Trade and Tourism	1	-	-	-	3	-	4	-
Justice	-	-	-	-	-	-	-	-
Labour	-	-	-	-	-	-	-	-
Manitoba Bureau of Statistics	-	-	-	-	-	-	-	-
Natural Resources	-	-	-	-	-	-	-	-
Rural Development	-	-	-	-	-	-	-	-
Urban Affairs	-	-	-	-	-	-	-	-
<b>Total</b>	<b>3</b>	<b>-</b>	<b>1</b>	<b>-</b>	<b>3</b>	<b>-</b>	<b>7</b>	<b>-</b>

(1) Includes the Manitoba Health Research Council

**TABLE 13. Personnel Engaged in Scientific Activities by Department or Agency and Activity, 1998-99 - Concluded**

Department or agency	Total scientific activities							
	Scientific & Professional		Technical		Other		Total	
	R&D	RSA	R&D	RSA	R&D	RSA	R&D	RSA
person-years								
Agriculture	-	13	-	2	-	1	-	16
Consumer and Corporate Affairs	-	2	-	-	-	1	-	3
Culture, Heritage and Citizenship	2	34	-	6	-	19	2	59
Education and Training	1	80	1	17	-	15	2	112
Energy and Mines	-	34	-	19	-	11	-	64
Environment	-	10	-	4	-	1	-	15
Family Services	-	4	-	-	-	-	-	4
Health (1)	8	1	-	-	-	-	8	1
Highways and Transportation	-	4	-	17	-	7	-	28
Industry, Trade and Tourism	1	9	-	-	3	1	4	10
Justice	-	4	-	1	-	1	-	6
Labour	6	8	-	2	1	2	7	12
Manitoba Bureau of Statistics	-	10	-	-	-	1	-	11
Natural Resources	2	15	2	30	-	1	4	46
Rural Development	-	-	-	-	-	-	-	-
Urban Affairs	-	2	-	-	-	-	-	2
<b>Total</b>	<b>20</b>	<b>230</b>	<b>3</b>	<b>98</b>	<b>4</b>	<b>61</b>	<b>27</b>	<b>389</b>

(1) Includes the Manitoba Health Research Council

**TABLE 14. Objectives of Expenditures by Department or Agency, 1998-99**

Department or agency	Advance- ment of science	Communi- cations	Energy & fuels					Environmental issues			
			=====					=====			
			Conser- vation	Fossil fuels	Hydro electric power	Renewable resources	Other	Air	Land	Water	Other
in thousands of dollars											
Agriculture	-	-	-	-	-	-	-	-	-	-	-
Consumer and Corporate Affairs	-	-	-	-	-	-	-	-	-	-	-
Culture, Heritage and Citizenship	93	-	-	-	-	-	-	-	-	-	12
Education and Training	-	-	-	-	-	-	-	-	-	-	-
Energy and Mines	-	-	-	225	-	-	-	-	2	-	-
Environment	-	65	-	-	-	-	-	463	107	1,276	117
Family Services	-	-	-	-	-	-	-	-	-	-	-
Health (1)	-	-	-	-	-	-	-	-	-	-	-
Highways and Transportation	-	-	-	-	-	-	-	-	-	-	-
Industry, Trade and Tourism	-	-	-	-	-	-	-	-	-	-	-
Justice	-	-	-	-	-	-	-	-	-	-	-
Labour	104	103	-	-	-	-	-	-	-	-	-
Manitoba Bureau of Statistics	-	-	-	-	-	-	-	-	-	-	-
Natural Resources	25	-	-	-	-	-	-	-	5	-	-
Rural Development	-	-	-	-	-	-	-	-	-	-	-
Urban Affairs	-	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>222</b>	<b>168</b>	<b>-</b>	<b>225</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>463</b>	<b>114</b>	<b>1,276</b>	<b>129</b>

(1) Includes the Manitoba Health Research Council

**TABLE 14. Objectives of Expenditures by Department or Agency, 1998-99 - Continued**

Department or agency	Health	Industrial & economic development					
		Agriculture	Fisheries	Forestry	Manufacturing	Minerals	Other
in thousands of dollars							
Agriculture	-	9,440	-	-	-	-	-
Consumer and Corporate Affairs	-	-	-	-	-	-	-
Culture, Heritage and Citizenship	-	-	-	-	-	-	-
Education and Training	-	-	-	-	-	-	-
Energy and Mines	-	-	-	-	-	4,314	-
Environment	-	-	-	20	-	-	-
Family Services	-	-	-	-	-	-	-
Health (1)	4,773	-	-	-	-	-	-
Highways and Transportation	-	-	-	-	-	-	-
Industry, Trade and Tourism	-	-	-	-	571	-	5,815
Justice	-	-	-	-	-	-	-
Labour	569	-	-	-	-	-	-
Manitoba Bureau of Statistics	-	-	-	-	-	-	817
Natural Resources	-	-	1,340	1,348	-	-	1,122
Rural Development	-	-	-	-	-	-	-
Urban Affairs	-	-	-	-	-	-	-
Total	5,342	9,440	1,340	1,368	571	4,314	7,754

(1) Includes the Manitoba Health Research Council

**TABLE 14. Objectives of Expenditures by Department or Agency, 1998-99 - Concluded**

Department or agency	Social development					Transportation	Wildlife	Other	Total
	Culture, sport & recreation	Education	Human resources	Urban & regional studies	Other				
in thousands of dollars									
Agriculture	-	-	-	-	-	-	-	-	9,440
Consumer and Corporate Affairs	-	-	-	-	194	-	-	-	194
Culture, Heritage and Citizenship	4,103	-	48	-	-	-	-	-	4,256
Education and Training	-	7,775	-	-	-	-	-	-	7,775
Energy and Mines	-	-	-	-	-	-	-	-	4,541
Environment	-	4	-	-	-	-	-	-	2,052
Family Services	-	-	-	-	312	-	-	-	312
Health (1)	-	-	-	-	-	-	-	-	4,773
Highways and Transportation	-	-	-	-	-	2,312	-	-	2,312
Industry, Trade and Tourism	-	-	-	-	-	-	-	-	6,386
Justice	-	-	-	-	416	-	-	-	416
Labour	-	-	673	-	-	-	-	-	1,449
Manitoba Bureau of Statistics	-	-	-	-	-	-	-	-	817
Natural Resources	284	-	-	-	-	-	-	-	4,124
Rural Development	-	-	-	100	-	-	-	-	100
Urban Affairs	-	-	-	135	-	-	-	-	135
Total	4,387	7,779	721	235	922	2,312	-	-	49,082

(1) Includes the Manitoba Health Research Council

**TABLE 15. Objectives of Expenditures by Activity, 1998-99**

Objective	Intramural		Extramural		Total
	=====		=====		
	Research and development	Related scientific activities	Research and development	Related scientific activities	
in thousands of dollars					
Advancement of science	222	-	-	-	222
Communications	-	168	-	-	168
Energy and fuels:					
Conservation	-	-	-	-	-
Fossil fuels	-	225	-	-	225
Hydro electric energy	-	-	-	-	-
Renewable resources	-	-	-	-	-
Other	-	-	-	-	-
Sub-total	-	225	-	-	225
Environmental issues:					
Air	-	411	-	52	463
Land	-	46	-	68	114
Water	-	465	10	801	1,276
Other	3	37	-	89	129
Sub-total	3	959	10	1,010	1,982
Health	899	50	2,543	1,850	5,342
Industrial and economic development:					
Agriculture	8	1,142	6,447	1,843	9,440
Fisheries	-	1,340	-	-	1,340
Forestry	106	1,219	33	10	1,368
Manufacturing	65	85	397	24	571
Minerals	-	4,314	-	-	4,314
Other	65	2,203	4,073	1,413	7,754
Sub-total	244	10,303	10,950	3,290	24,787
Social development:					
Culture, sport and recreation	-	4,280	4	103	4,387
Education	74	7,117	75	513	7,779
Human resources	-	673	-	48	721
Urban and regional studies	-	135	-	100	235
Other	-	823	-	99	922
Sub-total	74	13,028	79	863	14,044
Transportation	-	2,249	63	-	2,312
Wildlife	-	-	-	-	-
Other	-	-	-	-	-
Total	1,442	26,982	13,645	7,013	48,082

**TABLE 16. Total Expenditures by Activity and Performing Sector, 1999-2000 Estimates**

Activity	Intramural	Business Enterprise	Higher Education	Hospitals and health organizations	Industrial Technology Centre	Other	Total
in thousands of dollars							
<b>Research and development (R&amp;D)</b>							
Current expenditures:							
In-house R&D	1,202	...	...	...	...	...	1,202
R&D contracts	126	75	8	-	-	8	217
R&D grants and contributions	...	87	2,653	3,425	2,524	449	9,138
Research fellowships	-	-	625	225	-	22	872
Admin of extramural R&D programs	243	...	...	...	...	...	243
Sub-total current R&D	1,571	162	3,286	3,650	2,524	479	11,672
Capital expenditures	2	...	...	...	...	...	2
<b>Total R&amp;D</b>	<b>1,573</b>	<b>162</b>	<b>3,286</b>	<b>3,650</b>	<b>2,524</b>	<b>479</b>	<b>11,674</b>
<b>Related scientific activities (RSA)</b>							
Current expenditures	27,675	1,496	100	1,850	851	1,963	33,935
Admin of extramural RSA programs	63	...	...	...	...	...	63
Sub-total current RSA	27,738	1,496	100	1,850	851	1,963	33,998
Capital expenditures	145	...	...	...	...	...	145
<b>Total RSA</b>	<b>27,883</b>	<b>1,496</b>	<b>100</b>	<b>1,850</b>	<b>851</b>	<b>1,963</b>	<b>34,143</b>
<b>Total</b>	<b>29,456</b>	<b>1,658</b>	<b>3,386</b>	<b>5,500</b>	<b>3,375</b>	<b>2,442</b>	<b>45,817</b>

**TABLE 17. Total Expenditures by Department or Agency and Performing Sector, 1999-2000 Estimates**

Department or agency	Intramural	Business Enterprise	Higher Education	Hospitals and health organizations	Industrial Technology Centre	Other	Total
in thousands of dollars							
Agriculture	1,142	212	853	-	-	1,117	3,324
Consumer and Corporate Affairs	202	-	-	-	-	-	202
Culture, Heritage and Citizenship	4,402	83	-	-	-	44	4,529
Education and Training	7,310	75	-	-	-	513	7,898
Energy and Mines	4,825	-	-	-	-	-	4,825
Environment	993	1,010	-	-	-	50	2,053
Family Services	86	-	-	-	-	-	86
Health (1)	438	-	1,975	2,500	-	85	4,998
Highways and Transportation	2,459	63	-	-	-	-	2,522
Industry, Trade and Tourism	881	90	450	3,000	3,375	158	7,954
Justice	443	-	-	-	-	-	443
Labour	1,497	-	-	-	-	-	1,497
Manitoba Bureau of Statistics	920	-	-	-	-	-	920
Natural Resources	3,720	125	8	-	-	402	4,255
Rural Development	-	-	100	-	-	-	100
Urban Affairs	138	-	-	-	-	73	211
<b>Total</b>	<b>29,456</b>	<b>1,658</b>	<b>3,386</b>	<b>5,500</b>	<b>3,375</b>	<b>2,442</b>	<b>45,817</b>

(1) Includes the Manitoba Health Research Council

**TABLE 18. Total Expenditures by Department or Agency and Activity, 1999-2000 Estimates**

Department or agency	Research and development			Related scientific activities			Total
	=====			=====			
	Current	AEP(1)	Capital	Current	AEP(1)	Capital	
in thousands of dollars							
Agriculture	1,052	-	-	2,272	-	-	3,324
Consumer and Corporate Affairs	-	-	-	202	-	-	202
Culture, Heritage and Citizenship	99	-	-	4,304	-	126	4,529
Education and Training	135	50	-	7,713	-	-	7,898
Energy and Mines	-	-	-	4,816	-	9	4,825
Environment	50	3	-	1,990	-	10	2,053
Family Services	-	-	-	86	-	-	86
Health (2)	3,036	60	2	1,900	-	-	4,998
Highways and Transportation	63	-	-	2,459	-	-	2,522
Industry, Trade and Tourism	6,074	130	-	1,720	30	-	7,954
Justice	-	-	-	443	-	-	443
Labour	673	-	-	824	-	-	1,497
Manitoba Bureau of Statistics	-	-	-	920	-	-	920
Natural Resources	174	-	-	4,081	-	-	4,255
Rural Development	-	-	-	100	-	-	100
Urban Affairs	73	-	-	105	33	-	211
Total	11,429	243	2	33,935	63	145	45,817

(1) Administration of extramural programs

(2) Includes the Manitoba Health Research Council

**TABLE 19. Total Expenditures on R&D by Department or Agency and Performing Sector, 1999-2000 Estimates**

Department or agency	Intramural	Business Enterprise	Higher Education	Hospitals and health organizations	Industrial Technology Centre	Other	Total
in thousands of dollars							
Agriculture	8	24	853	-	-	167	1,052
Consumer and Corporate Affairs	-	-	-	-	-	-	-
Culture, Heritage and Citizenship	95	-	-	-	-	4	99
Education and Training	110	75	-	-	-	-	185
Energy and Mines	-	-	-	-	-	-	-
Environment	3	-	-	-	-	50	53
Family Services	-	-	-	-	-	-	-
Health (1)	388	-	1,975	650	-	85	3,098
Highways and Transportation	-	63	-	-	-	-	63
Industry, Trade and Tourism	130	-	450	3,000	2,524	100	6,204
Justice	-	-	-	-	-	-	-
Labour	673	-	-	-	-	-	673
Manitoba Bureau of Statistics	-	-	-	-	-	-	-
Natural Resources	166	-	8	-	-	-	174
Rural Development	-	-	-	-	-	-	-
Urban Affairs	-	-	-	-	-	73	73
<b>Total</b>	<b>1,573</b>	<b>162</b>	<b>3,286</b>	<b>3,650</b>	<b>2,524</b>	<b>479</b>	<b>11,674</b>

(1) Includes the Manitoba Health Research Council

**TABLE 20. Personnel Engaged in Scientific Activities by Department or Agency and Activity, 1999-2000 Estimates**

Department or agency	Intramural scientific activities							
	Scientific & Professional		Technical		Other		Total	
	R&D	RSA	R&D	RSA	R&D	RSA	R&D	RSA
person-years								
Agriculture	-	13	-	2	-	1	-	16
Consumer and Corporate Affairs	-	2	-	-	-	1	-	3
Culture, Heritage and Citizenship	2	34	-	6	-	19	2	59
Education and Training	4	82	-	10	-	13	4	105
Energy and Mines	-	35	-	19	-	11	-	65
Environment	-	10	-	4	-	1	-	15
Family Services	-	1	-	-	-	-	-	1
Health (1)	7	1	-	-	-	-	7	1
Highways and Transportation	-	4	-	17	-	7	-	28
Industry, Trade and Tourism	-	9	-	-	-	1	-	10
Justice	-	4	-	1	-	1	-	6
Labour	6	8	-	2	1	2	7	12
Manitoba Bureau of Statistics	-	11	-	-	-	1	-	12
Natural Resources	2	16	2	28	-	1	4	45
Rural Development	-	-	-	-	-	-	-	-
Urban Affairs	-	-	-	2	-	-	-	2
<b>Total</b>	<b>21</b>	<b>230</b>	<b>2</b>	<b>91</b>	<b>1</b>	<b>59</b>	<b>24</b>	<b>380</b>

(1) Includes the Manitoba Health Research Council

**TABLE 20. Personnel Engaged in Scientific Activities by Department or Agency and Activity, 1999-2000 Estimates - Continued**

Department or agency	Administration of extramural programs							
	Scientific & Professional		Technical		Other		Total	
	R&D	RSA	R&D	RSA	R&D	RSA	R&D	RSA
person-years								
Agriculture	-	-	-	-	-	-	-	-
Consumer and Corporate Affairs	-	-	-	-	-	-	-	-
Culture, Heritage and Citizenship	-	-	-	-	-	-	-	-
Education and Training	1	-	-	-	-	-	1	-
Energy and Mines	-	-	-	-	-	-	-	-
Environment	-	-	-	-	-	-	-	-
Family Services	-	-	-	-	-	-	-	-
Health (1)	1	-	-	-	-	-	1	-
Highways and Transportation	-	-	-	-	-	-	-	-
Industry, Trade and Tourism	1	-	-	-	2	1	3	1
Justice	-	-	-	-	-	-	-	-
Labour	-	-	-	-	-	-	-	-
Manitoba Bureau of Statistics	-	-	-	-	-	-	-	-
Natural Resources	-	-	-	-	-	-	-	-
Rural Development	-	-	-	-	-	-	-	-
Urban Affairs	-	-	-	-	-	-	-	-
<b>Total</b>	<b>3</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2</b>	<b>1</b>	<b>5</b>	<b>1</b>

(1) Includes the Manitoba Health Research Council



**TABLE 20. Personnel Engaged in Scientific Activities by Department or Agency and Activity, 1999-2000 Estimates - Concluded**

Department or agency	Total scientific activities							
	Scientific & Professional		Technical		Other		Total	
	R&D	RSA	R&D	RSA	R&D	RSA	R&D	RSA
person-years								
Agriculture	-	13	-	2	-	1	-	16
Consumer and Corporate Affairs	-	2	-	-	-	1	-	3
Culture, Heritage and Citizenship	2	34	-	6	-	19	2	59
Education and Training	5	82	-	10	-	13	5	105
Energy and Mines	-	35	-	19	-	11	-	65
Environment	-	10	-	4	-	1	-	15
Family Services	-	1	-	-	-	-	-	1
Health (1)	8	1	-	-	-	-	8	1
Highways and Transportation	-	4	-	17	-	7	-	28
Industry, Trade and Tourism	1	9	-	-	2	2	3	11
Justice	-	4	-	1	-	1	-	6
Labour	6	8	-	2	1	2	7	12
Manitoba Bureau of Statistics	-	11	-	-	-	1	-	12
Natural Resources	2	16	2	28	-	1	4	45
Rural Development	-	-	-	-	-	-	-	-
Urban Affairs	-	-	-	2	-	-	-	2
<b>Total</b>	<b>24</b>	<b>230</b>	<b>2</b>	<b>91</b>	<b>3</b>	<b>60</b>	<b>29</b>	<b>381</b>

(1) Includes the Manitoba Health Research Council

**TABLE 21. Objectives of Expenditures by Department or Agency, 1999-2000 Estimates**

Department or agency	Advance- ment of science	Communi- cations	Energy & fuels					Environmental issues			
			=====					=====			
			Conser- vation	Fossil fuels	Hydro electric power	Renewable resources	Other	Air	Land	Water	Other
in thousands of dollars											
Agriculture	-	-	-	-	-	-	-	-	-	-	-
Consumer and Corporate Affairs	-	-	-	-	-	-	-	-	-	-	-
Culture, Heritage and Citizenship	95	-	-	-	-	-	-	-	-	-	12
Education and Training	-	-	-	-	-	-	-	-	-	-	-
Energy and Mines	-	-	-	247	-	-	-	-	1	-	-
Environment	-	65	-	-	-	-	-	421	130	1,309	122
Family Services	-	-	-	-	-	-	-	-	-	-	-
Health (1)	-	-	-	-	-	-	-	-	-	-	-
Highways and Transportation	-	-	-	-	-	-	-	-	-	-	-
Industry, Trade and Tourism	-	-	-	-	-	-	-	-	-	-	-
Justice	-	-	-	-	-	-	-	-	-	-	-
Labour	104	103	-	-	-	-	-	-	-	-	-
Manitoba Bureau of Statistics	-	-	-	-	-	-	-	-	-	-	-
Natural Resources	25	-	-	-	-	-	-	-	5	-	-
Rural Development	-	-	-	-	-	-	-	-	-	-	-
Urban Affairs	-	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>224</b>	<b>168</b>	<b>-</b>	<b>247</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>421</b>	<b>136</b>	<b>1,309</b>	<b>134</b>

(1) Includes the Manitoba Health Research Council



TABLE 21. Objectives of Expenditures by Department or Agency, 1999-2000 Estimates - Continued

Department or agency	Health	Industrial & economic development					
		Agriculture	Fisheries	Forestry	Manufacturing	Minerals	Other
in thousands of dollars							
Agriculture	-	3,324	-	-	-	-	-
Consumer and Corporate Affairs	-	-	-	-	-	-	-
Culture, Heritage and Citizenship	-	-	-	-	-	-	-
Education and Training	-	-	-	-	-	-	-
Energy and Mines	-	-	-	-	-	4,577	-
Environment	-	-	-	-	-	-	-
Family Services	-	-	-	-	-	-	-
Health (1)	4,998	-	-	-	-	-	-
Highways and Transportation	-	-	-	-	-	-	-
Industry, Trade and Tourism	-	-	-	-	624	-	7,330
Justice	-	-	-	-	-	-	-
Labour	569	-	-	-	-	-	-
Manitoba Bureau of Statistics	-	-	-	-	-	-	920
Natural Resources	-	-	1,395	1,468	-	-	1,122
Rural Development	-	-	-	-	-	-	-
Urban Affairs	-	-	-	-	-	-	-
Total	5,567	3,324	1,395	1,468	624	4,577	9,372

(1) Includes the Manitoba Health Research Council

TABLE 21. Objectives of Expenditures by Department or Agency, 1999-2000 Estimates - Concluded

Department or agency	Social development					Transportation	Wildlife	Other	Total
	Culture, sport & recreation	Education	Human resources	Urban & regional studies	Other				
in thousands of dollars									
Agriculture	-	-	-	-	-	-	-	-	3,324
Consumer and Corporate Affairs	-	-	-	-	202	-	-	-	202
Culture, Heritage and Citizenship	4,382	-	40	-	-	-	-	-	4,529
Education and Training	-	7,898	-	-	-	-	-	-	7,898
Energy and Mines	-	-	-	-	-	-	-	-	4,825
Environment	-	6	-	-	-	-	-	-	2,053
Family Services	-	-	-	-	86	-	-	-	86
Health (1)	-	-	-	-	-	-	-	-	4,998
Highways and Transportation	-	-	-	-	-	2,522	-	-	2,522
Industry, Trade and Tourism	-	-	-	-	-	-	-	-	7,954
Justice	-	-	-	-	443	-	-	-	443
Labour	-	-	721	-	-	-	-	-	1,497
Manitoba Bureau of Statistics	-	-	-	-	-	-	920	-	920
Natural Resources	240	-	-	-	-	-	-	-	4,255
Rural Development	-	-	-	100	-	-	-	-	100
Urban Affairs	-	-	-	211	-	-	-	-	211
Total	4,622	7,904	761	311	731	2,522	-	-	45,817

(1) Includes the Manitoba Health Research Council

**TABLE 22. Objectives of Expenditures by Activity, 1999-2000 Estimates**

Objective	Intramural		Extramural		Total
	Research and development	Related scientific activities	Research and development	Related scientific activities	
in thousands of dollars					
Advancement of science	224	-	-	-	224
Communications	-	168	-	-	168
Energy and fuels:					
Conservation	-	-	-	-	-
Fossil fuels	-	247	-	-	247
Hydro electric energy	-	-	-	-	-
Renewable resources	-	-	-	-	-
Other	-	-	-	-	-
Sub-total	-	247	-	-	247
Environmental issues:					
Air	-	341	25	55	421
Land	-	61	10	65	136
Water	-	494	15	800	1,309
Other	3	41	-	90	134
Sub-total	3	937	50	1,010	2,000
Health	957	50	2,710	1,850	5,567
Industrial and economic development:					
Agriculture	8	1,134	1,044	1,138	3,324
Fisheries	-	1,395	-	-	1,395
Forestry	141	1,219	8	100	1,468
Manufacturing	65	85	450	24	624
Minerals	-	4,577	-	-	4,577
Other	65	2,306	5,624	1,377	9,372
Sub-total	279	10,716	7,126	2,639	20,760
Social development:					
Culture, sport and recreation	-	4,510	4	108	4,622
Education	110	7,206	75	513	7,904
Human resources	-	721	-	40	761
Urban and regional studies	-	138	73	100	311
Other	-	731	-	-	731
Sub-total	110	13,306	152	761	14,329
Transportation	-	2,459	63	-	2,522
Wildlife	-	-	-	-	-
Other	-	-	-	-	-
<b>Total</b>	<b>1,573</b>	<b>27,883</b>	<b>10,101</b>	<b>6,260</b>	<b>45,817</b>



## **NATURAL SCIENCES**



**TABLE 23. Total Expenditures in the Natural Sciences, by Activity, 1990-91 to 1999-2000 Estimates**

Activity	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
in thousands of dollars										
<b>Research and Development (R&amp;D)</b>										
Current expenditures:										
In-house R&D	680	641	527	431	337	142	132	778	939	982
R&D contracts	161	110	-	208	747	497	26	12	84	138
R&D grants and contributions	3,623	4,544	4,087	7,018	7,648	7,745	8,331	4,716	12,565	8,817
Research fellowships	965	1,080	1,196	867	703	706	804	580	643	722
Admin of extramural R&D programs	345	345	232	327	274	332	278	288	193	193
Sub-total current R&D	5,774	6,720	6,042	8,851	9,709	9,422	9,571	6,374	14,424	10,852
Capital expenditures	3	1	10	-	-	-	-	-	-	-
<b>Total R&amp;D</b>	<b>5,777</b>	<b>6,721</b>	<b>6,052</b>	<b>8,851</b>	<b>9,709</b>	<b>9,422</b>	<b>9,571</b>	<b>6,374</b>	<b>14,424</b>	<b>10,852</b>
<b>Related Scientific activities (RSA)</b>										
Current expenditures:										
Education support	38	38	79	39	50	50	27	52	58	51
Technical surveys	11,082	10,755	8,382	8,071	8,325	7,768	8,863	7,601	8,372	8,536
Information services	2,823	2,694	4,987	3,492	3,430	3,393	1,555	1,102	1,405	1,575
Special services and studies	5,263	5,066	4,469	5,184	6,281	7,217	6,718	7,133	6,648	6,243
Museum services	319	319	289	281	251	285	291	299	312	312
Admin of extramural RSA programs	60	67	65	30	30	33	30	30	30	30
Sub-total current RSA	19,585	18,939	18,271	17,097	18,367	18,746	17,484	16,217	16,825	16,747
Capital expenditures	146	179	123	146	392	228	210	66	19	19
<b>Total RSA</b>	<b>19,731</b>	<b>19,118</b>	<b>18,394</b>	<b>17,243</b>	<b>18,759</b>	<b>18,974</b>	<b>17,694</b>	<b>16,283</b>	<b>16,844</b>	<b>16,766</b>
<b>Total</b>	<b>25,508</b>	<b>25,839</b>	<b>24,446</b>	<b>26,094</b>	<b>28,468</b>	<b>28,396</b>	<b>27,265</b>	<b>22,657</b>	<b>31,268</b>	<b>27,618</b>

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## **IMPORTANT NOTE CONCERNING THE FOLLOWING PAGES**

**THE PAGES WHICH FOLLOW HAVE BEEN FILMED  
TWICE IN ORDER TO OBTAIN THE BEST  
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**USERS SHOULD CONSULT ALL THE PAGES  
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TABLE 24. Total Expenditures in the Natural Sciences, by Department or Agency, 1990-91 to 1999-2000 Estimates

Department or agency	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
in thousands of dollars										
Agriculture	2,371	2,431	2,080	2,188	2,488	2,588	2,601	2,888	2,888	2,888
Conservation and Citizenship	222	218	209	221	221	221	221	221	212	212
Environment	2,944	2,992	2,959	2,978	2,978	2,978	2,741	2,688	2,688	2,688
Executive Council	...	...	497	1,789	1,350	...	...	...	...	...
Health (1)	...	...	...	2,888	2,888	2,888	2,779	2,888	2,888	2,888
Manitoba and Transportation	...	...	1,228	1,228	1,228	1,228	2,684	2,784	2,812	2,812
Industry, Trade and Tourism	2,188	2,188	2,188	2,188	2,188	2,188	7,482	5,487	5,481	7,482
Library	0	0	0	0	0	0	20	730	776	776
Manitoba Health Research Council (1)	2,509	2,543	2,486	...	...	...	...	...	...	...
Natural Resources	2,371	2,398	2,212	2,088	2,088	4,528	4,416	3,628	4,124	4,288
<b>Total</b>	<b>25,508</b>	<b>25,839</b>	<b>24,446</b>	<b>26,094</b>	<b>26,468</b>	<b>26,396</b>	<b>27,265</b>	<b>22,657</b>	<b>31,268</b>	<b>27,618</b>

(1) As of 1993-94, Health values include the Manitoba Health Research Council  
Departments or Agencies as of 1998-99 fiscal year

TABLE 25. Total Expenditures in the Natural Sciences, by Performing Sector, 1990-91 to 1999-2000 Estimates

Performing sector	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
in thousands of dollars										
Intramural	16,693	16,399	15,555	13,163	12,657	12,515	14,157	13,073	13,933	14,517
Business Enterprise	602	832	1,266	3,512	4,358	4,341	4,978	2,477	2,304	1,410
Higher Education	3,483	3,552	3,061	2,692	2,950	2,414	2,354	2,897	5,936	2,938
Hospitals and health organizations	459	126	418	475	531	1,779	1,385	349	4,009	3,600
Industrial Technology Centre	2,709	2,500	2,907	4,335	5,911	5,709	2,767	2,208	2,930	3,375
Other	1,562	2,430	1,239	1,917	2,061	1,638	1,624	1,653	2,156	1,778
<b>Total</b>	<b>25,508</b>	<b>25,839</b>	<b>24,446</b>	<b>26,094</b>	<b>26,468</b>	<b>26,396</b>	<b>27,265</b>	<b>22,657</b>	<b>31,268</b>	<b>27,618</b>

TABLE 26. Total Expenditures on R&D in the Natural Sciences, by Performing Sector, 1990-91 to 1999-2000 Estimates

Performing sector	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
in thousands of dollars										
Intramural	1,043	997	769	861	716	529	436	1,078	1,212	1,301
Business Enterprise	485	575	1,239	3,414	4,270	4,103	3,487	615	447	87
Higher Education	3,288	3,517	3,061	2,688	2,950	2,389	2,354	2,897	5,934	2,938
Hospitals and health organizations	459	126	418	475	531	1,779	1,385	349	4,009	3,600
Industrial Technology Centre	13	-	177	419	504	344	1,724	1,174	2,043	2,524
Other	489	1,506	388	994	738	278	185	261	779	402
<b>Total</b>	<b>5,777</b>	<b>6,721</b>	<b>6,052</b>	<b>8,851</b>	<b>9,709</b>	<b>9,422</b>	<b>9,571</b>	<b>6,374</b>	<b>14,424</b>	<b>10,852</b>

TABLE 27. Total Expenditures on R&D in the Natural Sciences, by Department or Agency, 1990-91 to 1999-2000 Estimates

Department or agency	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
in thousands of dollars										
Government of Canada	1,005	1,000	347	989	1,100	805	730	770	1,000	1,000
Manitoba Health Research Council (1)	2,509	2,543	2,486	...	...	...	...	...	...	...
Executive Council	...	...	497	1,789	1,308	...	...	...	...	...
<b>Total</b>	<b>5,777</b>	<b>6,721</b>	<b>6,052</b>	<b>8,851</b>	<b>9,709</b>	<b>9,422</b>	<b>9,571</b>	<b>6,374</b>	<b>14,424</b>	<b>10,852</b>

(1) As of 1993-94, Health values include the Manitoba Health Research Council

**TABLE 24. Total Expenditures in the Natural Sciences, by Department or Agency, 1990-91 to 1999-2000 Estimates**

Department or agency	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
in thousands of dollars										
Agriculture	2,871	2,431	2,030	2,285	2,828	2,965	2,881	3,002	9,020	3,010
Culture, Heritage and Citizenship	319	319	289	281	251	285	291	299	312	312
Energy and Mines	3,851	3,686	3,566	2,995	3,706	3,377	4,561	4,462	4,541	4,825
Environment	2,344	2,562	2,809	2,752	2,483	2,500	2,141	2,000	2,052	2,053
Executive Council	...	...	497	1,789	1,350	...	...	...	...	...
Health (1)	...	...	...	2,034	1,982	3,307	2,779	2,262	2,590	2,756
Highways and Transportation	48	49	1,009	1,018	1,306	2,055	2,684	2,766	2,312	2,522
Industry, Trade and Tourism	5,186	6,172	6,539	7,906	8,968	9,373	7,492	3,487	5,541	7,109
Labour	9	9	9	9	9	9	20	750	776	776
Manitoba Health Research Council (1)	2,509	2,543	2,486	...	...	...	...	...	...	...
Natural Resources	8,371	8,068	5,212	5,025	5,585	4,525	4,416	3,629	4,124	4,255
<b>Total</b>	<b>25,508</b>	<b>25,839</b>	<b>24,446</b>	<b>26,094</b>	<b>28,468</b>	<b>28,396</b>	<b>27,265</b>	<b>22,657</b>	<b>31,268</b>	<b>27,618</b>

(1) As of 1993-94, Health values include the Manitoba Health Research Council  
Departments or Agencies as of 1998-99 fiscal year

**TABLE 25. Total Expenditures in the Natural Sciences, by Performing Sector, 1990-91 to 1999-2000 Estimates**

Performing sector	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
in thousands of dollars										
Intramural	16,693	16,399	15,555	13,163	12,657	12,515	14,157	13,073	13,933	14,517
Business Enterprise	602	832	1,266	3,512	4,358	4,341	4,978	2,477	2,304	1,410
Higher Education	3,483	3,552	3,061	2,692	2,950	2,414	2,354	2,897	5,936	2,938
Hospitals and health organizations	459	126	418	475	531	1,779	1,385	349	4,009	3,600
Industrial Technology Centre	2,709	2,500	2,907	4,335	5,911	5,709	2,767	2,208	2,930	3,375
Other	1,562	2,430	1,239	1,917	2,061	1,638	1,624	1,653	2,156	1,778
<b>Total</b>	<b>25,508</b>	<b>25,839</b>	<b>24,446</b>	<b>26,094</b>	<b>28,468</b>	<b>28,396</b>	<b>27,265</b>	<b>22,657</b>	<b>31,268</b>	<b>27,618</b>

**TABLE 26. Total Expenditures on R&D in the Natural Sciences, by Performing Sector, 1990-91 to 1999-2000 Estimates**

Performing sector	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
in thousands of dollars										
Intramural	1,043	997	769	861	716	529	436	1,078	1,212	1,301
Business Enterprise	485	575	1,239	3,414	4,270	4,103	3,487	615	447	87
Higher Education	3,288	3,517	3,061	2,688	2,950	2,389	2,354	2,897	5,934	2,938
Hospitals and health organizations	459	126	418	475	531	1,779	1,385	349	4,009	3,600
Industrial Technology Centre	13	-	177	419	504	344	1,724	1,174	2,043	2,524
Other	489	1,506	388	994	738	278	185	261	779	402
<b>Total</b>	<b>5,777</b>	<b>6,721</b>	<b>6,052</b>	<b>8,851</b>	<b>9,709</b>	<b>9,422</b>	<b>9,571</b>	<b>6,374</b>	<b>14,424</b>	<b>10,852</b>

**TABLE 27. Total Expenditures on R&D in the Natural Sciences, by Department or Agency, 1990-91 to 1999-2000 Estimates**

Department or agency	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
in thousands of dollars										
Agriculture	1,065	1,036	847	863	791	814	799	795	6,321	929
Culture, Heritage and Citizenship	...	...	...	...	...	...	...	...	...	...
Energy and Mines	13	...	...	103	215	165	26	12	-	-
Environment	135	132	112	67	116	70	61	48	33	53
Executive Council	...	...	497	1,789	1,308	...	...	...	...	...
Health (1)	...	...	...	2,034	1,982	3,307	2,779	2,262	2,590	2,756
Highways and Transportation	48	49	44	44	66	65	63	63	63	63
Industry, Trade and Tourism	1,875	2,841	1,247	3,288	4,357	4,876	5,718	2,419	4,600	6,204
Labour	...	...	...	...	...	...	...	650	673	673
Manitoba Health Research Council (1)	2,509	2,543	2,486	...	...	...	...	...	...	...
Natural Resources	132	120	819	663	874	125	125	125	144	174
<b>Total</b>	<b>5,777</b>	<b>6,721</b>	<b>6,052</b>	<b>8,851</b>	<b>9,709</b>	<b>9,422</b>	<b>9,571</b>	<b>6,374</b>	<b>14,424</b>	<b>10,852</b>

(1) As of 1993-94, Health values include the Manitoba Health Research Council  
Departments or Agencies as of 1998-99 fiscal year

TABLE 28. Personnel Engaged in the Natural Sciences, by Activity and Category, 1990-91 to 1999-2000 Estimates

Activity and category	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
	person-years									
<b>Research and development</b>										
Scientific and professional	11	11	5	7	10	4	3	13	14	14
Technical	-	-	9	7	4	1	1	3	2	2
Other	2	2	-	-	-	-	-	1	1	1
Sub-total R&D personnel	13	13	14	14	14	5	4	17	17	17
<b>Administration of R&amp;D extramural programs</b>										
Scientific and professional	...	...	...	6	5	6	5	3	2	2
Technical	...	...	...	-	-	-	-	-	-	-
Other	...	...	...	-	-	-	-	2	3	2
Sub-total R&D AEP personnel	...	...	...	6	5	6	5	5	5	4
<b>Related scientific activities</b>										
Scientific and professional	125	121	116	104	88	90	94	76	78	80
Technical	220	201	101	93	84	89	91	70	73	71
Other	28	22	22	22	17	18	19	23	22	22
Sub-total RSA personnel	373	344	239	219	189	197	204	169	173	173
<b>Administration of RSA extramural programs</b>										
Scientific and professional	...	...	...	-	-	-	-	-	-	-
Technical	...	...	...	-	-	-	-	-	-	-
Other	...	...	...	1	1	1	1	1	-	1
Sub-total RSA AEP personnel	...	...	...	1	1	1	1	1	-	1
<b>Administration of total extramural programs (1)</b>										
Scientific and professional	6	6	6	...	...	...	...	...	...	...
Technical	1	1	-	...	...	...	...	...	...	...
Other	1	1	-	...	...	...	...	...	...	...
Sub-total total AEP personnel	8	8	6	...	...	...	...	...	...	...
<b>Total science activities</b>										
Scientific and professional	142	138	127	117	103	100	102	92	94	96
Technical	221	202	110	100	88	90	92	73	75	73
Other	31	25	22	23	18	19	20	27	26	26
<b>Total science personnel</b>	<b>394</b>	<b>365</b>	<b>259</b>	<b>240</b>	<b>209</b>	<b>209</b>	<b>214</b>	<b>192</b>	<b>195</b>	<b>195</b>

(1) From 1990-91 to 1992-93 the person-years devoted to the administration of extramural programs were not separated by activity and therefore are shown under the heading "Administration of total extramural programs".

**TABLE 29. Total Expenditures in the Natural Sciences, by Department or Agency and Source of Funds, 1998-99**

Department or agency	Departmental budget	Transfers from other Departments	Transfers from federal government	From trust funds	From business enterprises	From other sources	Total
in thousands of dollars							
Agriculture	8,890	-	-	-	-	130	9,020
Culture, Heritage and Citizenship	312	-	-	-	-	-	312
Energy and Mines	4,286	-	-	105	150	-	4,541
Environment	2,019	-	-	-	-	33	2,052
Health (1)	2,217	54	173	-	33	113	2,590
Highways and Transportation	2,312	-	-	-	-	-	2,312
Industry, Trade and Tourism	5,541	-	-	-	-	-	5,541
Labour	776	-	-	-	-	-	776
Natural Resources	4,124	-	-	-	-	-	4,124
<b>Total</b>	<b>30,477</b>	<b>54</b>	<b>173</b>	<b>105</b>	<b>183</b>	<b>276</b>	<b>31,288</b>

(1) Includes the Manitoba Health Research Council

**TABLE 30. Total Expenditures in the Natural Sciences, by Activity and Performing Sector, 1998-99**

Activity	Intramural	Business Enterprise	Higher Education	Hospitals and health organizations	Industrial Technology Centre	Other	Total
in thousands of dollars							
<b>Research and development (R&amp;D)</b>							
Current expenditures:							
In-house R&D	939	...	...	...	...	...	939
R&D contracts	80	-	-	-	-	4	84
R&D grants and contributions	...	447	5,452	3,848	2,043	775	12,565
Research fellowships	-	-	482	161	-	-	643
Admin of extramural R&D programs	193	...	...	...	...	...	193
Sub-total current R&D	1,212	447	5,934	4,009	2,043	779	14,424
Capital expenditures	-	...	...	...	...	...	-
<b>Total R&amp;D</b>	<b>1,212</b>	<b>447</b>	<b>5,934</b>	<b>4,009</b>	<b>2,043</b>	<b>779</b>	<b>14,424</b>
<b>Related scientific activities (RSA)</b>							
Current expenditures:							
Education support	44	-	-	-	-	14	58
Technical surveys	7,425	525	-	-	-	422	8,372
Information services	1,402	1	2	-	-	-	1,405
Special services and studies	3,489	1,331	-	-	887	941	6,648
Museum services	312	-	-	-	-	-	312
Admin of extramural RSA programs	30	...	...	...	...	...	30
Sub-total current RSA	12,702	1,857	2	-	887	1,377	16,825
Capital expenditures	19	...	...	...	...	...	19
<b>Total RSA</b>	<b>12,721</b>	<b>1,857</b>	<b>2</b>	<b>-</b>	<b>887</b>	<b>1,377</b>	<b>16,844</b>
<b>Total</b>	<b>13,933</b>	<b>2,304</b>	<b>5,936</b>	<b>4,009</b>	<b>2,930</b>	<b>2,156</b>	<b>31,288</b>

**TABLE 31. Total Expenditures in the Natural Sciences, by Department or Agency and Performing Sector, 1998-99**

Department or agency	Intramural	Business Enterprise	Higher Education	Hospitals and health organizations	Industrial Technology Centre	Other	Total
in thousands of dollars							
Agriculture	937	1,211	3,842	1,500	20	1,510	9,020
Culture, Heritage and Citizenship	312	-	-	-	-	-	312
Energy and Mines	4,541	-	-	-	-	-	4,541
Environment	1,012	1,010	-	-	-	30	2,052
Health (1)	267	-	1,684	509	-	130	2,590
Highways and Transportation	2,249	63	-	-	-	-	2,312
Industry, Trade and Tourism	160	-	397	2,000	2,910	74	5,541
Labour	776	-	-	-	-	-	776
Natural Resources	3,679	20	13	-	-	412	4,124
<b>Total</b>	<b>13,933</b>	<b>2,304</b>	<b>5,936</b>	<b>4,009</b>	<b>2,930</b>	<b>2,156</b>	<b>31,268</b>

(1) Includes the Manitoba Health Research Council

**TABLE 32. Total Expenditures in the Natural Sciences, by Department or Agency and Activity, 1998-99**

Department or agency	Research & development			Related scientific activities						Total	
	=====			=====							
	Current	AEP(1)	Capital	Educa- tion support	Tech- nical surveys	Infor- mation services	Special services & studies	Museum services	AEP(1)		Capital
in thousands of dollars											
Agriculture	6,321	-	-	8	428	108	2,155	-	-	-	9,020
Culture, Heritage and Citizenship	-	-	-	-	-	-	-	312	-	-	312
Energy and Mines	-	-	-	-	4,003	529	-	-	-	9	4,541
Environment	30	3	-	36	1,306	65	602	-	-	10	2,052
Health (2)	2,530	60	-	-	-	-	-	-	-	-	2,590
Highways and Transportation	63	-	-	-	-	-	2,249	-	-	-	2,312
Industry, Trade and Tourism	4,470	130	-	4	20	-	887	-	30	-	5,541
Labour	673	-	-	-	-	103	-	-	-	-	776
Natural Resources	144	-	-	10	2,615	600	755	-	-	-	4,124
<b>Total</b>	<b>14,231</b>	<b>193</b>	<b>-</b>	<b>58</b>	<b>8,372</b>	<b>1,405</b>	<b>6,648</b>	<b>312</b>	<b>30</b>	<b>19</b>	<b>31,268</b>

(1) Administration of extramural programs

(2) Includes the Manitoba Health Research Council



**TABLE 33. Total Expenditures on R&D in the Natural Sciences, by Department or Agency and Performing Sector, 1998-99**

Department or agency	Intramural	Business Enterprise	Higher Education	Hospitals and health organizations	Industrial Technology Centre	Other	Total
in thousands of dollars							
Agriculture	8	384	3,840	1,500	20	569	6,321
Culture, Heritage and Citizenship	-	-	-	-	-	-	-
Energy and Mines	-	-	-	-	-	-	-
Environment	3	-	-	-	-	30	33
Health (1)	267	-	1,684	509	-	130	2,590
Highways and Transportation	-	63	-	-	-	-	63
Industry, Trade and Tourism	130	-	397	2,000	2,023	50	4,600
Labour	673	-	-	-	-	-	673
Natural Resources	131	-	13	-	-	-	144
<b>Total</b>	<b>1,212</b>	<b>447</b>	<b>5,934</b>	<b>4,009</b>	<b>2,043</b>	<b>779</b>	<b>14,424</b>

(1) Includes the Manitoba Health Research Council

**TABLE 34. Intramural Expenditures in the Natural Sciences, by Department or Agency and Type of Expenditure, 1998-99**

Department or agency	Current expenditures		Capital Expenditures	Total
	=====			
	Personnel costs	Other costs		
in thousands of dollars				
Agriculture	658	279	-	937
Culture, Heritage and Citizenship	298	14	-	312
Energy and Mines	3,000	1,532	9	4,541
Environment	771	231	10	1,012
Health (1)	203	64	-	267
Highways and Transportation	1,480	769	-	2,249
Industry, Trade and Tourism	160	-	-	160
Labour	466	310	-	776
Natural Resources	2,608	1,071	-	3,679
Total	9,644	4,270	19	13,933

(1) Includes the Manitoba Health Research Council

TABLE 35. Personnel Engaged in Natural Science Activities, by Department or Agency and Activity, 1998-99

Department or agency	Intramural scientific activities							
	Scientific & Professional R&D		Technical		Other		Total	
	R&D	RSA	R&D	RSA	R&D	RSA	R&D	RSA
person-years								
Agriculture	-	11	-	1	-	1	-	13
Culture, Heritage and Citizenship	-	4	-	1	-	1	-	6
Energy and Mines	-	34	-	19	-	11	-	64
Environment	-	10	-	4	-	1	-	15
Health (1)	6	-	-	-	-	-	6	-
Highways and Transportation	-	4	-	17	-	7	-	28
Industry, Trade and Tourism	-	-	-	-	-	-	-	-
Labour	6	-	-	1	1	-	7	1
Natural Resources	2	15	2	30	-	1	4	46
<b>Total</b>	<b>14</b>	<b>78</b>	<b>2</b>	<b>73</b>	<b>1</b>	<b>22</b>	<b>17</b>	<b>173</b>
Department or agency	Administration of extramural programs							
	Scientific & Professional R&D		Technical		Other		Total	
	R&D	RSA	R&D	RSA	R&D	RSA	R&D	RSA
person-years								
Agriculture	-	-	-	-	-	-	-	-
Culture, Heritage and Citizenship	-	-	-	-	-	-	-	-
Energy and Mines	-	-	-	-	-	-	-	-
Environment	-	-	-	-	-	-	-	-
Health (1)	1	-	-	-	-	-	1	-
Highways and Transportation	-	-	-	-	-	-	-	-
Industry, Trade and Tourism	1	-	-	-	3	-	4	-
Labour	-	-	-	-	-	-	-	-
Natural Resources	-	-	-	-	-	-	-	-
<b>Total</b>	<b>2</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>3</b>	<b>-</b>	<b>5</b>	<b>-</b>
Department or agency	Total scientific activities							
	Scientific & Professional R&D		Technical		Other		Total	
	R&D	RSA	R&D	RSA	R&D	RSA	R&D	RSA
person-years								
Agriculture	-	11	-	1	-	1	-	13
Culture, Heritage and Citizenship	-	4	-	1	-	1	-	6
Energy and Mines	-	34	-	19	-	11	-	64
Environment	-	10	-	4	-	1	-	15
Health (1)	7	-	-	-	-	-	7	-
Highways and Transportation	-	4	-	17	-	7	-	28
Industry, Trade and Tourism	1	-	-	-	3	-	4	-
Labour	6	-	-	1	1	-	7	1
Natural Resources	2	15	2	30	-	1	4	46
<b>Total</b>	<b>16</b>	<b>78</b>	<b>2</b>	<b>73</b>	<b>4</b>	<b>22</b>	<b>22</b>	<b>173</b>

(1) Includes the Manitoba Health Research Council

**TABLE 36. Objectives of Expenditures in the Natural Sciences, by Department or Agency, 1998-99**

Department or agency	Advance- ment of science	Communi- cations	Energy & fuels					Environmental issues			
			Conser- vation	Fossil fuels	Hydro electric power	Renewable resources	Other	Air	Land	Water	Other
in thousands of dollars											
Agriculture	-	-	-	-	-	-	-	-	-	-	-
Culture, Heritage and Citizenship	-	-	-	-	-	-	-	-	-	-	-
Energy and Mines	-	-	-	225	-	-	-	-	-	-	-
Environment	-	65	-	-	-	-	-	463	107	1,276	117
Health (1)	-	-	-	-	-	-	-	-	-	-	-
Highways and Transportation	-	-	-	-	-	-	-	-	-	-	-
Industry, Trade and Tourism	-	-	-	-	-	-	-	-	-	-	-
Labour	104	103	-	-	-	-	-	-	-	-	-
Natural Resources	25	-	-	-	-	-	-	-	5	-	-
<b>Total</b>	<b>129</b>	<b>168</b>		<b>225</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>463</b>	<b>114</b>	<b>1,276</b>	<b>117</b>

Department or agency	Health	Industrial & economic development					
		Agriculture	Fisheries	Forestry	Manufacturing	Minerals	Other
in thousands of dollars							
Agriculture	-	9,020	-	-	-	-	-
Culture, Heritage and Citizenship	-	-	-	-	-	-	-
Energy and Mines	-	-	-	-	-	4,314	-
Environment	-	-	-	20	-	-	-
Health (1)	2,590	-	-	-	-	-	-
Highways and Transportation	-	-	-	-	-	-	-
Industry, Trade and Tourism	-	-	-	-	491	-	5,050
Labour	569	-	-	-	-	-	-
Natural Resources	-	-	1,340	1,348	-	-	1,122
<b>Total</b>	<b>3,159</b>	<b>9,020</b>	<b>1,340</b>	<b>1,368</b>	<b>491</b>	<b>4,314</b>	<b>6,172</b>

Department or agency	Social development					Transpor- tation	Wildlife	Other	Total
	Culture, sport & recreation	Education	Human resources	Urban & regional studies	Other				
in thousands of dollars									
Agriculture	-	-	-	-	-	-	-	-	9,020
Culture, Heritage and Citizenship	312	-	-	-	-	-	-	-	312
Energy and Mines	-	-	-	-	-	-	-	-	4,541
Environment	-	4	-	-	-	-	-	-	2,052
Health (1)	-	-	-	-	-	-	-	-	2,590
Highways and Transportation	-	-	-	-	-	2,312	-	-	2,312
Industry, Trade and Tourism	-	-	-	-	-	-	-	-	5,541
Labour	-	-	-	-	-	-	-	-	776
Natural Resources	284	-	-	-	-	-	-	-	4,124
<b>Total</b>	<b>596</b>	<b>4</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2,312</b>	<b>-</b>	<b>-</b>	<b>31,288</b>

(1) Includes the Manitoba Health Research Council

TABLE 37. Objectives of Expenditures in the Natural Sciences, by Activity, 1998-99

Objective	Intramural		Extramural		Total
	Research and development	Related scientific activities	Research and development	Related scientific activities	
in thousands of dollars					
Advancement of science	129	-	-	-	129
Communications	-	168	-	-	168
Energy and fuels:					
Conservation	-	-	-	-	-
Fossil fuels	-	225	-	-	225
Hydro electric energy	-	-	-	-	-
Renewable resources	-	-	-	-	-
Other	-	-	-	-	-
Sub-total	-	225	-	-	225
Environmental issues:					
Air	-	411	-	52	463
Land	-	46	-	68	114
Water	-	465	10	801	1,276
Other	3	25	-	89	117
Sub-total	3	947	10	1,010	1,970
Health	836	-	2,323	-	3,159
Industrial and economic development:					
Agriculture	8	929	6,313	1,770	9,020
Fisheries	-	1,340	-	-	1,340
Forestry	106	1,219	33	10	1,368
Manufacturing	65	5	397	24	491
Minerals	-	4,314	-	-	4,314
Other	65	745	4,073	1,289	6,172
Sub-total	244	8,552	10,816	3,093	22,705
Social development:					
Culture, sport and recreation	-	576	-	20	596
Education	-	4	-	-	4
Human resources	-	-	-	-	-
Urban and regional studies	-	-	-	-	-
Other	-	-	-	-	-
Sub-total	-	580	-	20	600
Transportation	-	2,249	63	-	2,312
Wildlife	-	-	-	-	-
Other	-	-	-	-	-
<b>Total</b>	<b>1,212</b>	<b>12,721</b>	<b>13,212</b>	<b>4,123</b>	<b>31,268</b>

**TABLE 38. Total Expenditures in the Natural Sciences, by Activity and Performing Sector, 1999-2000 Estimates**

Activity	Intramural	Business Enterprise	Higher Education	Hospitals and health organizations	Industrial Technology Centre	Other	Total
in thousands of dollars							
<b>Research and development (R&amp;D)</b>							
Current expenditures:							
In-house R&D	982	...	...	...	...	...	982
R&D contracts	126	-	8	-	-	4	138
R&D grants and contributions	...	87	2,430	3,400	2,524	376	8,817
Research fellowships	-	-	500	200	-	22	722
Admin of extramural R&D programs	193	...	...	...	...	...	193
Sub-total current R&D	1,301	87	2,938	3,600	2,524	402	10,852
Capital expenditures	-	...	...	...	...	...	-
<b>Total R&amp;D</b>	<b>1,301</b>	<b>87</b>	<b>2,938</b>	<b>3,600</b>	<b>2,524</b>	<b>402</b>	<b>10,852</b>
<b>Related scientific activities (RSA)</b>							
Current expenditures:							
Education support	47	-	-	-	-	4	51
Technical surveys	7,584	530	-	-	-	422	8,536
Information services	1,475	100	-	-	-	-	1,575
Special services and studies	3,749	693	-	-	851	950	6,243
Museum services	312	-	-	-	-	-	312
Admin of extramural RSA programs	30	...	...	...	...	...	30
Sub-total current RSA	13,197	1,323	-	-	851	1,376	16,747
Capital expenditures	19	...	...	...	...	...	19
<b>Total RSA</b>	<b>13,216</b>	<b>1,323</b>	<b>-</b>	<b>-</b>	<b>851</b>	<b>1,376</b>	<b>16,766</b>
<b>Total</b>	<b>14,517</b>	<b>1,410</b>	<b>2,938</b>	<b>3,600</b>	<b>3,375</b>	<b>1,778</b>	<b>27,618</b>

**TABLE 39. Total Expenditures in the Natural Sciences, by Department or Agency and Performing Sector, 1999-2000 Estimates**

Department or agency	Intramural	Business Enterprise	Higher Education	Hospitals and health organizations	Industrial Technology Centre	Other	Total
in thousands of dollars							
Agriculture	951	212	730	-	-	1,117	3,010
Culture, Heritage and Citizenship	312	-	-	-	-	-	312
Energy and Mines	4,825	-	-	-	-	-	4,825
Environment	993	1,010	-	-	-	50	2,053
Health (1)	321	-	1,750	600	-	85	2,756
Highways and Transportation	2,459	63	-	-	-	-	2,522
Industry, Trade and Tourism	160	-	450	3,000	3,375	124	7,109
Labour	776	-	-	-	-	-	776
Natural Resources	3,720	125	8	-	-	402	4,255
<b>Total</b>	<b>14,517</b>	<b>1,410</b>	<b>2,938</b>	<b>3,600</b>	<b>3,375</b>	<b>1,778</b>	<b>27,618</b>

(1) Includes the Manitoba Health Research Council

**TABLE 40. Total Expenditures in the Natural Sciences, by Department or Agency and Activity, 1999-2000 Estimates**

Department or agency	Research & development			Related scientific activities						Total	
	=====			=====							
	Current	AEP (1)	Capital	Educa- tion support	Tech- nical surveys	Infor- mation services	Special services & studies	Museum services	AEP (1)		Capital
in thousands of dollars											
Agriculture	929	-	-	8	436	105	1,532	-	-	-	3,010
Culture, Heritage and Citizenship	-	-	-	-	-	-	-	312	-	-	312
Energy and Mines	-	-	-	-	4,224	592	-	-	-	9	4,825
Environment	50	3	-	39	1,270	75	606	-	-	10	2,053
Health (2)	2,696	60	-	-	-	-	-	-	-	-	2,756
Highways and Transportation	63	-	-	-	-	-	2,459	-	-	-	2,522
Industry, Trade and Tourism	6,074	130	-	4	20	-	851	-	30	-	7,109
Labour	673	-	-	-	-	103	-	-	-	-	776
Natural Resources	174	-	-	-	2,586	700	795	-	-	-	4,255
<b>Total</b>	<b>10,659</b>	<b>193</b>	<b>-</b>	<b>51</b>	<b>8,536</b>	<b>1,575</b>	<b>6,243</b>	<b>312</b>	<b>30</b>	<b>19</b>	<b>27,618</b>

(1) Administration of extramural programs

(2) Includes the Manitoba Health Research Council

**TABLE 41. Total Expenditures on R&D in the Natural Sciences, by Department or Agency and Performing Sector, 1999-2000 Estimates**

Department or agency	Intramural	Business Enterprise	Higher Education	Hospitals and health organizations	Industrial Technology Centre	Other	Total
in thousands of dollars							
Agriculture	8	24	730	-	-	167	929
Culture, Heritage and Citizenship	-	-	-	-	-	-	-
Energy and Mines	-	-	-	-	-	-	-
Environment	3	-	-	-	-	50	53
Health (1)	321	-	1,750	600	-	85	2,756
Highways and Transportation	-	63	-	-	-	-	63
Industry, Trade and Tourism	130	-	450	3,000	2,524	100	6,204
Labour	673	-	-	-	-	-	673
Natural Resources	166	-	8	-	-	-	174
<b>Total</b>	<b>1,301</b>	<b>87</b>	<b>2,938</b>	<b>3,600</b>	<b>2,524</b>	<b>402</b>	<b>10,852</b>

(1) Includes the Manitoba Health Research Council

**TABLE 42. Personnel Engaged in Natural Science Activities, by Department or Agency and Activity, 1999-2000 Estimates**

Department or agency	Intramural scientific activities							
	Scientific & Professional		Technical		Other		Total	
	R&D	RSA	R&D	RSA	R&D	RSA	R&D	RSA
person-years								
Agriculture	-	11	-	1	-	1	-	13
Culture, Heritage and Citizenship	-	4	-	1	-	1	-	6
Energy and Mines	-	35	-	19	-	11	-	65
Environment	-	10	-	4	-	1	-	15
Health (1)	6	-	-	-	-	-	6	-
Highways and Transportation	-	4	-	17	-	7	-	28
Industry, Trade and Tourism	-	-	-	-	-	-	-	-
Labour	6	-	-	1	1	-	7	1
Natural Resources	2	16	2	28	-	1	4	45
<b>Total</b>	<b>14</b>	<b>80</b>	<b>2</b>	<b>71</b>	<b>1</b>	<b>22</b>	<b>17</b>	<b>173</b>
Department or agency	Administration of extramural programs							
	Scientific & Professional		Technical		Other		Total	
	R&D	RSA	R&D	RSA	R&D	RSA	R&D	RSA
person-years								
Agriculture	-	-	-	-	-	-	-	-
Culture, Heritage and Citizenship	-	-	-	-	-	-	-	-
Energy and Mines	-	-	-	-	-	-	-	-
Environment	-	-	-	-	-	-	-	-
Health (1)	1	-	-	-	-	-	1	-
Highways and Transportation	-	-	-	-	-	-	-	-
Industry, Trade and Tourism	1	-	-	-	2	1	3	1
Labour	-	-	-	-	-	-	-	-
Natural Resources	-	-	-	-	-	-	-	-
<b>Total</b>	<b>2</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2</b>	<b>1</b>	<b>4</b>	<b>1</b>
Department or agency	Total scientific activities							
	Scientific & Professional		Technical		Other		Total	
	R&D	RSA	R&D	RSA	R&D	RSA	R&D	RSA
person-years								
Agriculture	-	11	-	1	-	1	-	13
Culture, Heritage and Citizenship	-	4	-	1	-	1	-	6
Energy and Mines	-	35	-	19	-	11	-	65
Environment	-	10	-	4	-	1	-	15
Health (1)	7	-	-	-	-	-	7	-
Highways and Transportation	-	4	-	17	-	7	-	28
Industry, Trade and Tourism	1	-	-	-	2	1	3	1
Labour	6	-	-	1	1	-	7	1
Natural Resources	2	16	2	28	-	1	4	45
<b>Total</b>	<b>16</b>	<b>80</b>	<b>2</b>	<b>71</b>	<b>3</b>	<b>23</b>	<b>21</b>	<b>174</b>

(1) Includes the Manitoba Health Research Council



**TABLE 43. Objectives of Expenditures in the Natural Sciences, by Department or Agency, 1999-2000 Estimates**

Department or agency	Advance- ment of science	Communi- cations	Energy & fuels					Environmental issues			
			=====					=====			
			Conser- vation	Fossil fuels	Hydro electric power	Renewable resources	Other	Air	Land	Water	Other
in thousands of dollars											
Agriculture	-	-	-	-	-	-	-	-	-	-	-
Culture, Heritage and Citizenship	-	-	-	-	-	-	-	-	-	-	-
Energy and Mines	-	-	-	247	-	-	-	-	1	-	-
Environment	-	65	-	-	-	-	-	421	130	1,309	122
Health (1)	-	-	-	-	-	-	-	-	-	-	-
Highways and Transportation	-	-	-	-	-	-	-	-	-	-	-
Industry, Trade and Tourism	-	-	-	-	-	-	-	-	-	-	-
Labour	104	103	-	-	-	-	-	-	-	-	-
Natural Resources	25	-	-	-	-	-	-	-	5	-	-
<b>Total</b>	<b>129</b>	<b>168</b>	<b>-</b>	<b>247</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>421</b>	<b>136</b>	<b>1,309</b>	<b>122</b>

Department or agency	Health	Industrial & economic development					
		=====					
		Agriculture	Fisheries	Forestry	Manufacturing	Minerals	Other
in thousands of dollars							
Agriculture	-	3,010	-	-	-	-	-
Culture, Heritage and Citizenship	-	-	-	-	-	-	-
Energy and Mines	-	-	-	-	-	4,577	-
Environment	-	-	-	-	-	-	-
Health (1)	2,756	-	-	-	-	-	-
Highways and Transportation	-	-	-	-	-	-	-
Industry, Trade and Tourism	-	-	-	-	-	-	-
Labour	569	-	-	-	544	-	6,565
Natural Resources	-	-	1,395	1,468	-	-	1,122
<b>Total</b>	<b>3,325</b>	<b>3,010</b>	<b>1,395</b>	<b>1,468</b>	<b>544</b>	<b>4,577</b>	<b>7,687</b>

Department or agency	Social development					Transportation	Wildlife	Other	Total
	Culture, sport & recreation	Education	Human resources	Urban & regional studies	Other				
in thousands of dollars									
Agriculture	-	-	-	-	-	-	-	-	3,010
Culture, Heritage and Citizenship	312	-	-	-	-	-	-	-	312
Energy and Mines	-	-	-	-	-	-	-	-	4,825
Environment	-	6	-	-	-	-	-	-	2,053
Health (1)	-	-	-	-	-	-	-	-	2,756
Highways and Transportation	-	-	-	-	-	2,522	-	-	2,522
Industry, Trade and Tourism	-	-	-	-	-	-	-	-	7,109
Labour	-	-	-	-	-	-	-	-	776
Natural Resources	240	-	-	-	-	-	-	-	4,255
Total	552	6	-	-	-	2,522	-	-	27,618

(1) Includes the Manitoba Health Research Council

**TABLE 44. Objectives of Expenditures in the Natural Sciences, by Activity, 1999-2000 Estimates**

Objective	Intramural		Extramural		Total
	Research and development	Related scientific activities	Research and development	Related scientific activities	
in thousands of dollars					
Advancement of science	129	-	-	-	129
Communications	-	168	-	-	168
Energy and fuels:					
Conservation	-	-	-	-	-
Fossil fuels	-	247	-	-	247
Hydro electric energy	-	-	-	-	-
Renewable resources	-	-	-	-	-
Other	-	-	-	-	-
Sub-total	-	247	-	-	247
Environmental issues:					
Air	-	341	25	55	421
Land	-	61	10	65	136
Water	-	494	15	800	1,309
Other	3	29	-	90	122
Sub-total	3	925	50	1,010	1,988
Health	890	-	2,435	-	3,325
Industrial and economic development:					
Agriculture	8	943	921	1,138	3,010
Fisheries	-	1,395	-	-	1,395
Forestry	141	1,219	8	100	1,468
Manufacturing	65	5	450	24	544
Minerals	-	4,577	-	-	4,577
Other	65	745	5,624	1,253	7,687
Sub-total	279	8,884	7,003	2,515	18,681
Social development:					
Culture, sport and recreation	-	527	-	25	552
Education	-	6	-	-	6
Human resources	-	-	-	-	-
Urban and regional studies	-	-	-	-	-
Other	-	-	-	-	-
Sub-total	-	533	-	25	558
Transportation	-	2,459	63	-	2,522
Wildlife	-	-	-	-	-
Other	-	-	-	-	-
<b>Total</b>	<b>1,301</b>	<b>13,216</b>	<b>9,551</b>	<b>3,550</b>	<b>27,618</b>



**SOCIAL SCIENCES AND HUMANITIES**



**TABLE 45. Total Expenditures in the Social Sciences and Humanities, by Activity, 1990-91 to 1999-2000 Estimates**

Activity	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
in thousands of dollars										
<b>Research and Development (R&amp;D)</b>										
Current expenditures:										
In-house R&D	168	185	160	94	94	93	128	128	155	220
R&D contracts	89	115	100	136	-	-	125	295	79	79
R&D grants and contributions	320	202	180	281	1,701	930	198	193	244	321
Research fellowships	97	131	149	267	260	163	161	80	110	150
Admin of extramural R&D programs	25	25	25	20	-	-	-	60	74	50
Sub-total current R&D	699	658	614	798	2,055	1,186	612	756	662	820
Capital expenditures	-	-	-	-	-	-	-	-	1	2
<b>Total R&amp;D</b>	<b>699</b>	<b>658</b>	<b>614</b>	<b>798</b>	<b>2,055</b>	<b>1,186</b>	<b>612</b>	<b>756</b>	<b>663</b>	<b>822</b>
<b>Related Scientific activities (RSA)</b>										
Current expenditures:										
Admin of extramural RSA programs	9	323	271	11	11	-	-	12	49	33
Sub-total current RSA	11,331	12,284	14,274	15,601	16,516	16,153	13,939	16,357	17,114	17,251
Capital expenditures	56	149	106	42	75	90	110	63	37	126
<b>Total RSA</b>	<b>11,387</b>	<b>12,433</b>	<b>14,380</b>	<b>15,643</b>	<b>16,591</b>	<b>16,243</b>	<b>14,049</b>	<b>16,420</b>	<b>17,151</b>	<b>17,377</b>
<b>Total</b>	<b>12,086</b>	<b>13,091</b>	<b>14,994</b>	<b>16,441</b>	<b>18,646</b>	<b>17,429</b>	<b>14,661</b>	<b>17,176</b>	<b>17,814</b>	<b>18,199</b>

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**TABLE 46. Total Expenditures in the Social Sciences and Humanities, by Department or Agency, 1990-91 to 1999-2000 Estimates**

Department or agency	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
in thousands of dollars										
Agriculture	442	527	342	302	282	304	284	283	420	314
Consumer and Corporate Affairs	...	136	136	144	151	159	163	165	194	202
Cooperative, Consumer, Corporate Affairs	137	...	...	...	...	...	...	...	...	...
Culture, Heritage and Citizenship	2,626	2,555	3,585	3,394	3,538	3,646	3,641	3,615	3,944	4,217
Education and Training	2,696	2,803	3,296	2,558	2,210	3,016	4,061	7,000	7,775	7,898
Energy and Mines	216	297	169	72	47	32	35	42	-	-
Executive Council	...	...	...	...	25	...	...	...	...	...
Family Services	1,258	1,160	1,134	1,200	1,041	993	319	436	312	56
Government Services	48	38	...	...	...	...	...	...	...	...
Health (1)	1,889	3,171	3,531	5,580	8,479	6,527	2,352	2,050	2,189	2,242
Industry, Trade and Tourism	262	266	490	767	757	745	614	829	846	845
Justice	181	212	482	461	437	420	409	415	418	443
Labour	1,164	673	683	766	705	651	678	667	673	721
Manitoba Bureau of Statistics	465	443	524	555	567	565	669	770	617	620
Manitoba Health Research Council (1)	297	213	221	...	...	...	...	...	...	...
Natural Resources	20	...	...	...	...	...	...	...	...	...
Rural Development	220	667	307	261	261	251	168	100	100	100
Urban Affairs	145	-	80	100	146	127	130	133	135	211
<b>Total</b>	<b>12,086</b>	<b>13,091</b>	<b>14,994</b>	<b>16,441</b>	<b>18,646</b>	<b>17,429</b>	<b>14,661</b>	<b>17,176</b>	<b>17,814</b>	<b>18,199</b>

(1) As of 1993-94, Health values include the Manitoba Health Research Council  
Departments or Agencies as of 1998-99 fiscal year

**TABLE 47. Total Expenditures in the Social Sciences and Humanities, by Performing Sector, 1990-91 to 1999-2000 Estimates**

Performing sector	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
in thousands of dollars										
Intramural	9,941	10,359	11,370	10,583	9,296	9,859	11,732	13,799	14,491	14,939
Business Enterprise	100	176	189	567	784	269	377	555	413	248
Higher Education	706	1,334	2,196	3,017	1,565	357	397	327	446	448
Hospitals and health organizations	-	330	-	986	4,395	1,922	1,922	1,896	1,865	1,900
Industrial Technology Centre	15	40	40	-	-	-	-	-	-	-
Other	1,324	852	1,199	1,288	2,606	5,022	233	599	599	664
<b>Total</b>	<b>12,086</b>	<b>13,091</b>	<b>14,994</b>	<b>16,441</b>	<b>18,646</b>	<b>17,429</b>	<b>14,661</b>	<b>17,176</b>	<b>17,814</b>	<b>18,199</b>

**TABLE 48. Total Expenditures on R&D in the Social Sciences and Humanities, by Performing Sector, 1990-91 to 1999-2000 Estimates**

Performing sector	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
in thousands of dollars										
Intramural	193	210	185	114	94	93	128	188	230	272
Business Enterprise	-	25	25	156	20	20	125	288	75	75
Higher Education	499	398	379	467	394	252	287	227	339	348
Hospitals and health organizations	-	-	-	61	1,037	72	72	46	15	50
Industrial Technology Centre	-	25	25	-	-	-	-	-	-	-
Other	7	-	-	-	510	749	-	7	4	77
<b>Total</b>	<b>699</b>	<b>658</b>	<b>614</b>	<b>798</b>	<b>2,055</b>	<b>1,186</b>	<b>612</b>	<b>756</b>	<b>663</b>	<b>822</b>

**TABLE 49. Total Expenditures on R&D in the Social Sciences and Humanities, by Department or Agency, 1990-91 to 1999-2000 Estimates**

Department or agency	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
person-years										
Agriculture	140	140	128	125	125	125	123	123	164	125
Consumer and Corporate Affairs	...	...	...	...	...	...	...	...	...	...
Culture, Heritage and Citizenship	202	226	215	94	94	93	93	95	97	99
Education and Training	...	...	...	130	500	749	125	346	148	...
Employment Services & Economic Security	...	...	...	...	...	...	...	...	...	...
Energy and Mines	...	79	50	20	30	20	35	42	-	...
Executive Council	...	...	...	...	...	...	...	...	...	...
Family Services	...	...	...	...	...	...	...	...	...	...
Health (1)	...	...	...	423	1,036	169	236	193	368	...
Industry, Trade and Tourism	...	...	...	...	...	...	...	...	...	...
Justice	...	...	...	...	...	...	...	...	...	...
Labour	...	...	...	...	...	...	...	...	...	...
Manitoba Bureau of Statistics	...	...	...	...	...	...	...	...	...	...
Manitoba Health Research Council (1)	297	213	221	...	...	...	...	...	...	...
Natural Resources	...	...	...	...	...	...	...	...	...	...
Rural Development	...	...	...	...	...	...	...	...	...	...
Urban Affairs	...	...	...	...	...	...	...	...	...	...
<b>Total</b>	<b>699</b>	<b>658</b>	<b>614</b>	<b>798</b>	<b>2,055</b>	<b>1,186</b>	<b>612</b>	<b>756</b>	<b>663</b>	<b>822</b>

(1) As of 1993-94, Health values include the Manitoba Health Research Council  
Departments or Agencies as of 1995-99 fiscal year

**TABLE 46. Total Expenditures in the Social Sciences and Humanities, by Department or Agency, 1990-91 to 1999-2000 Estimates**

Department or agency	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
in thousands of dollars										
Agriculture	442	327	342	302	282	304	284	283	420	314
Consumer and Corporate Affairs	...	136	136	144	151	139	183	185	194	202
Cooperative, Consumer, Corporate Affairs	137	...	...	...	...	...	...	...	...	...
Culture, Heritage and Citizenship	2,626	2,565	3,588	3,394	3,538	3,648	3,641	3,618	3,944	4,217
Education and Training	2,696	2,903	3,298	2,558	2,210	3,016	4,981	7,658	7,775	7,898
Energy and Mines	216	297	188	72	47	32	35	42	-	-
Executive Council	...	...	...	...	25	...	...	...	...	...
Family Services	1,258	1,160	1,134	1,200	1,041	993	319	436	312	86
Government Services	48	38	...	...	...	...	...	...	...	...
Health (1)	1,889	3,171	3,531	5,860	8,479	6,527	2,352	2,050	2,183	2,242
Industry, Trade and Tourism	262	286	490	757	757	745	814	829	845	845
Justice	181	212	482	461	437	420	409	415	416	443
Labour	1,164	673	663	766	705	651	676	657	673	721
Manitoba Bureau of Statistics	485	443	524	566	567	566	669	770	817	920
Manitoba Health Research Council (1)	297	213	221	...	...	...	...	...	...	...
Natural Resources	20	...	...	...	...	...	...	...	...	...
Rural Development	220	667	307	281	261	261	168	100	100	100
Urban Affairs	145	-	90	100	146	127	130	133	135	211
<b>Total</b>	<b>12,086</b>	<b>13,091</b>	<b>14,994</b>	<b>16,441</b>	<b>18,646</b>	<b>17,429</b>	<b>14,661</b>	<b>17,176</b>	<b>17,814</b>	<b>18,199</b>

(1) As of 1993-94, Health values include the Manitoba Health Research Council  
Departments or Agencies as of 1998-99 fiscal year

**TABLE 47. Total Expenditures in the Social Sciences and Humanities, by Performing Sector, 1990-91 to 1999-2000 Estimates**

Performing sector	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
in thousands of dollars										
Intramural	9,941	10,359	11,370	10,583	9,296	9,859	11,732	13,799	14,491	14,939
Business Enterprise	100	176	189	567	784	269	377	555	413	248
Higher Education	706	1,334	2,196	3,017	1,565	357	397	327	446	448
Hospitals and health organizations	-	330	-	986	4,395	1,922	1,922	1,896	1,865	1,900
Industrial Technology Centre	15	40	40	-	-	-	-	-	-	-
Other	1,324	852	1,199	1,288	2,606	5,022	233	599	599	664
<b>Total</b>	<b>12,086</b>	<b>13,091</b>	<b>14,994</b>	<b>16,441</b>	<b>18,646</b>	<b>17,429</b>	<b>14,661</b>	<b>17,176</b>	<b>17,814</b>	<b>18,199</b>

**TABLE 48. Total Expenditures on R&D in the Social Sciences and Humanities, by Performing Sector, 1990-91 to 1999-2000 Estimates**

Performing sector	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
in thousands of dollars										
Intramural	193	210	185	114	94	93	128	188	230	272
Business Enterprise	-	25	25	156	20	20	125	288	75	75
Higher Education	499	398	379	467	394	252	287	227	339	348
Hospitals and health organizations	-	-	-	61	1,037	72	72	46	15	50
Industrial Technology Centre	-	25	25	-	-	-	-	-	-	-
Other	7	-	-	-	510	749	-	7	4	77
<b>Total</b>	<b>699</b>	<b>658</b>	<b>614</b>	<b>798</b>	<b>2,055</b>	<b>1,186</b>	<b>612</b>	<b>756</b>	<b>663</b>	<b>822</b>

**TABLE 49. Total Expenditures on R&D in the Social Sciences and Humanities, by Department or Agency, 1990-91 to 1999-2000 Estimates**

Department or agency	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
person-years										
Agriculture	140	140	128	125	125	125	123	123	134	123
Consumer and Corporate Affairs	***	***	***	***	***	***	***	***	***	***
Culture, Heritage and Citizenship	262	226	215	94	94	93	93	93	97	99
Education and Training	***	***	***	136	500	749	125	348	149	185
Employment Services & Economic Security	***	***	***	***	***	***	***	***	***	***
Energy and Mines	***	79	50	20	30	20	35	42	-	-
Executive Council	***	***	***	***	***	***	***	***	***	***
Family Services	***	***	***	***	***	***	***	***	***	***
Health (1)	***	***	***	423	1,306	199	236	150	283	342
Industry, Trade and Tourism	***	***	***	***	***	***	***	***	***	***
Justice	***	***	***	***	***	***	***	***	***	***
Labour	***	***	***	***	***	***	***	***	***	***
Manitoba Bureau of Statistics	***	***	***	***	***	***	***	***	***	***
Manitoba Health Research Council (1)	297	213	221	***	***	***	***	***	***	***
Natural Resources	***	***	***	***	***	***	***	***	***	***
Rural Development	***	***	***	***	***	***	***	***	***	***
Urban Affairs	***	***	***	***	***	***	***	***	***	73
<b>Total</b>	<b>699</b>	<b>658</b>	<b>614</b>	<b>798</b>	<b>2,055</b>	<b>1,186</b>	<b>612</b>	<b>756</b>	<b>663</b>	<b>822</b>

(1) As of 1993-94, Health values include the Manitoba Health Research Council  
Departments or Agencies as of 1998-99 fiscal year

**TABLE 50. Personnel Engaged in the Social Sciences and Humanities, by Activity and Category, 1990-91 to 1999-2000 Estimates**

Activity and category	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000e
person-years										
<b>Research and development</b>										
Scientific and professional	4	5	4	2	2	2	2	2	3	7
Technical	-	-	1	-	-	-	1	1	-	-
Other	-	-	-	-	-	-	-	-	-	-
Sub-total R&D personnel	4	5	5	2	2	2	3	3	3	7
<b>Administration of R&amp;D extramural programs</b>										
Scientific and professional	...	...	...	1	-	-	-	1	1	1
Technical	...	...	...	-	-	-	-	-	1	-
Other	...	...	...	-	-	-	-	1	-	-
Sub-total R&D AEP personnel	...	...	...	1	-	-	-	2	2	1
<b>Related scientific activities</b>										
Scientific and professional	142	137	137	106	97	102	111	144	152	150
Technical	12	12	6	21	18	21	30	31	25	20
Other	43	38	28	29	31	30	33	35	39	37
Sub-total RSA personnel	197	187	171	156	146	153	174	210	216	207
<b>Administration of RSA extramural programs</b>										
Scientific and professional	...	...	...	-	-	-	-	-	-	-
Technical	...	...	...	-	-	-	-	-	-	-
Other	...	...	...	1	1	-	-	-	-	-
Sub-total RSA AEP personnel	...	...	...	1	1	-	-	-	-	-
<b>Administration of total extramural programs (1)</b>										
Scientific and professional	1	6	5	...	...	...	...	...	...	...
Technical	-	-	-	...	...	...	...	...	...	...
Other	1	1	1	...	...	...	...	...	...	...
Sub-total total AEP personnel	2	7	6	...	...	...	...	...	...	...
<b>Total science activities</b>										
Scientific and professional	147	148	146	109	99	104	113	147	156	158
Technical	12	12	7	21	18	21	31	32	26	20
Other	44	39	29	30	32	30	33	36	39	37
<b>Total science personnel</b>	<b>203</b>	<b>199</b>	<b>182</b>	<b>160</b>	<b>149</b>	<b>155</b>	<b>177</b>	<b>215</b>	<b>221</b>	<b>215</b>

(1) From 1990-91 to 1992-93 the person-years devoted to the administration of extramural programs were not separated by activity and therefore are shown under the heading "Administration of total extramural programs".

**TABLE 51. Total Expenditures in the Social Sciences and Humanities, by Department or Agency and Source of Funds, 1998-99**

Department or agency	Departmental budget	Transfers from other Departments	Transfers from federal government	From trust funds	From business enterprises	From other sources	Total
in thousands of dollars							
Agriculture	420	-	-	-	-	-	420
Consumer and Corporate Affairs	194	-	-	-	-	-	194
Culture, Heritage and Citizenship	3,785	-	5	43	83	28	3,944
Education and Training	7,775	-	-	-	-	-	7,775
Energy and Mines	-	-	-	-	-	-	-
Family Services	233	30	49	-	-	-	312
Health (1)	2,183	-	-	-	-	-	2,183
Industry, Trade and Tourism	845	-	-	-	-	-	845
Justice	416	-	-	-	-	-	416
Labour	673	-	-	-	-	-	673
Manitoba Bureau of Statistics	817	-	-	-	-	-	817
Rural Development	100	-	-	-	-	-	100
Urban Affairs	135	-	-	-	-	-	135
<b>Total</b>	<b>17,576</b>	<b>30</b>	<b>54</b>	<b>43</b>	<b>83</b>	<b>28</b>	<b>17,814</b>

(1) Includes the Manitoba Health Research Council

**TABLE 52. Total Expenditures in the Social Sciences and Humanities, by Activity and Performing Sector, 1998-99**

Activity	Intramural	Business Enterprise	Higher Education	Hospitals and health organizations	Industrial Technology Centre	Other	Total
in thousands of dollars							
<b>Research and development (R&amp;D)</b>							
Current expenditures:							
In-house R&D	155	...	...	...	...	...	155
R&D contracts	-	75	-	-	-	4	79
R&D grants and contributions	...	-	229	15	-	-	244
Research fellowships	-	-	110	-	-	-	110
Admin of extramural R&D programs	74	...	...	...	...	...	74
Sub-total current R&D	229	75	339	15	-	4	662
Capital expenditures	1	...	...	...	...	...	1
<b>Total R&amp;D</b>	<b>230</b>	<b>75</b>	<b>339</b>	<b>15</b>	<b>-</b>	<b>4</b>	<b>663</b>
<b>Related scientific activities (RSA)</b>							
Current expenditures	14,175	338	107	1,850	-	595	17,065
Admin of extramural RSA programs	49	...	...	...	...	...	49
Sub-total current RSA	14,224	338	107	1,850	-	595	17,114
Capital expenditures	37	...	...	...	...	...	37
<b>Total RSA</b>	<b>14,261</b>	<b>338</b>	<b>107</b>	<b>1,850</b>	<b>-</b>	<b>595</b>	<b>17,151</b>
<b>Total</b>	<b>14,491</b>	<b>413</b>	<b>446</b>	<b>1,865</b>	<b>-</b>	<b>599</b>	<b>17,814</b>



**TABLE 53. Total Expenditures in the Social Sciences and Humanities, by Department or Agency and Performing Sector, 1998-99**

Department or agency	Intramural	Business Enterprise	Higher Education	Hospitals and health organizations	Industrial Technology Centre	Other	Total
in thousands of dollars							
Agriculture	213	66	141	-	-	-	420
Consumer and Corporate Affairs	194	-	-	-	-	-	194
Culture, Heritage and Citizenship	3,809	83	-	-	-	52	3,944
Education and Training	7,187	75	-	-	-	513	7,775
Energy and Mines	-	-	-	-	-	-	-
Family Services	213	99	-	-	-	-	312
Health (1)	113	-	205	1,865	-	-	2,183
Industry, Trade and Tourism	721	90	-	-	-	34	845
Justice	416	-	-	-	-	-	416
Labour	673	-	-	-	-	-	673
Manitoba Bureau of Statistics	817	-	-	-	-	-	817
Rural Development	-	-	100	-	-	-	100
Urban Affairs	135	-	-	-	-	-	135
<b>Total</b>	<b>14,491</b>	<b>413</b>	<b>446</b>	<b>1,865</b>	<b>-</b>	<b>599</b>	<b>17,814</b>

(1) Includes the Manitoba Health Research Council

**TABLE 54. Total Expenditures in the Social Sciences and Humanities, by Department or Agency and Activity, 1998-99**

Department or agency	Research and development			Related scientific activities			Total
	Current	AEP(1)	Capital	Current	AEP(1)	Capital	
in thousands of dollars							
Agriculture	134	-	-	286	-	-	420
Consumer and Corporate Affairs	-	-	-	194	-	-	194
Culture, Heritage and Citizenship	97	-	-	3,810	-	37	3,944
Education and Training	75	74	-	7,626	-	-	7,775
Energy and Mines	-	-	-	-	-	-	-
Family Services	-	-	-	296	16	-	312
Health (2)	282	-	1	1,900	-	-	2,183
Industry, Trade and Tourism	-	-	-	845	-	-	845
Justice	-	-	-	416	-	-	416
Labour	-	-	-	673	-	-	673
Manitoba Bureau of Statistics	-	-	-	817	-	-	817
Rural Development	-	-	-	100	-	-	100
Urban Affairs	-	-	-	102	33	-	135
Total	588	74	1	17,085	49	37	17,814

(1) Administration of extramural programs

(2) Includes the Manitoba Health Research Council



**TABLE 55. Total Expenditures on R&D in the Social Sciences and Humanities, by Department or Agency and Performing Sector, 1998-99**

Department or agency	Intramural	Business Enterprise	Higher Education	Hospitals and health organizations	Industrial Technology Centre	Other	Total
in thousands of dollars							
Agriculture	-	-	134	-	-	-	134
Consumer and Corporate Affairs	-	-	-	-	-	-	-
Culture, Heritage and Citizenship	93	-	-	-	-	4	97
Education and Training	74	75	-	-	-	-	149
Energy and Mines	-	-	-	-	-	-	-
Family Services	-	-	-	-	-	-	-
Health (1)	63	-	205	15	-	-	283
Industry, Trade and Tourism	-	-	-	-	-	-	-
Justice	-	-	-	-	-	-	-
Labour	-	-	-	-	-	-	-
Manitoba Bureau of Statistics	-	-	-	-	-	-	-
Rural Development	-	-	-	-	-	-	-
Urban Affairs	-	-	-	-	-	-	-
<b>Total</b>	<b>230</b>	<b>75</b>	<b>339</b>	<b>15</b>	<b>-</b>	<b>4</b>	<b>663</b>

(1) Includes the Manitoba Health Research Council

**TABLE 56. Intramural Expenditures in the Social Sciences and Humanities, by Department or Agency and Type of Expenditure, 1998-99**

Department or agency	Current expenditures		Capital expenditures	Total
	Personnel costs	Other costs		
in thousands of dollars				
Agriculture	150	63	-	213
Consumer and Corporate Affairs	167	27	-	194
Culture, Heritage and Citizenship	2,323	1,449	37	3,809
Education and Training	5,700	1,487	-	7,187
Energy and Mines	-	-	-	-
Family Services	206	7	-	213
Health (1)	112	-	1	113
Industry, Trade and Tourism	556	165	-	721
Justice	269	147	-	416
Labour	523	150	-	673
Manitoba Bureau of Statistics	568	249	-	817
Rural Development	-	-	-	-
Urban Affairs	102	33	-	135
<b>Total</b>	<b>10,676</b>	<b>3,777</b>	<b>38</b>	<b>14,491</b>

(1) Includes the Manitoba Health Research Council

**TABLE 57. Personnel Engaged in Scientific Activities in the Social Sciences and Humanities, by Department or Agency and Activity, 1998-99**

Department or agency	Intramural scientific activities							
	Scientific & Professional		Technical		Other		Total	
	R&D	RSA	R&D	RSA	R&D	RSA	R&D	RSA
person-years								
Agriculture	-	2	-	1	-	-	-	3
Consumer and Corporate Affairs	-	2	-	-	-	1	-	3
Culture, Heritage and Citizenship	2	30	-	5	-	18	2	53
Education and Training	-	80	-	17	-	15	-	112
Energy and Mines	-	-	-	-	-	-	-	-
Family Services	-	4	-	-	-	-	-	4
Health (1)	1	1	-	-	-	-	1	1
Industry, Trade and Tourism	-	9	-	-	-	1	-	10
Justice	-	4	-	1	-	1	-	6
Labour	-	8	-	1	-	2	-	11
Manitoba Bureau of Statistics	-	10	-	-	-	1	-	11
Rural Development	-	-	-	-	-	-	-	-
Urban Affairs	-	2	-	-	-	-	-	2
<b>Total</b>	<b>3</b>	<b>152</b>	<b>-</b>	<b>25</b>	<b>-</b>	<b>39</b>	<b>3</b>	<b>216</b>
Department or agency	Administration of extramural programs							
	Scientific & Professional		Technical		Other		Total	
	R&D	RSA	R&D	RSA	R&D	RSA	R&D	RSA
person-years								
Agriculture	-	-	-	-	-	-	-	-
Consumer and Corporate Affairs	-	-	-	-	-	-	-	-
Culture, Heritage and Citizenship	-	-	-	-	-	-	-	-
Education and Training	1	-	1	-	-	-	2	-
Energy and Mines	-	-	-	-	-	-	-	-
Family Services	-	-	-	-	-	-	-	-
Health (1)	-	-	-	-	-	-	-	-
Industry, Trade and Tourism	-	-	-	-	-	-	-	-
Justice	-	-	-	-	-	-	-	-
Labour	-	-	-	-	-	-	-	-
Manitoba Bureau of Statistics	-	-	-	-	-	-	-	-
Rural Development	-	-	-	-	-	-	-	-
Urban Affairs	-	-	-	-	-	-	-	-
<b>Total</b>	<b>1</b>	<b>-</b>	<b>1</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2</b>	<b>-</b>
Department or agency	Total scientific activities							
	Scientific & Professional		Technical		Other		Total	
	R&D	RSA	R&D	RSA	R&D	RSA	R&D	RSA
person-years								
Agriculture	-	2	-	1	-	-	-	3
Consumer and Corporate Affairs	-	2	-	-	-	1	-	3
Culture, Heritage and Citizenship	2	30	-	5	-	18	2	53
Education and Training	1	80	1	17	-	15	2	112
Energy and Mines	-	-	-	-	-	-	-	-
Family Services	-	4	-	-	-	-	-	4
Health (1)	1	1	-	-	-	-	1	1
Industry, Trade and Tourism	-	9	-	-	-	1	-	10
Justice	-	4	-	1	-	1	-	6
Labour	-	8	-	1	-	2	-	11
Manitoba Bureau of Statistics	-	10	-	-	-	1	-	11
Rural Development	-	-	-	-	-	-	-	-
Urban Affairs	-	2	-	-	-	-	-	2
<b>Total</b>	<b>4</b>	<b>152</b>	<b>1</b>	<b>25</b>	<b>-</b>	<b>39</b>	<b>5</b>	<b>216</b>

(1) Includes the Manitoba Health Research Council

**TABLE 58. Objectives of Expenditures in the Social Sciences and Humanities, by Department or Agency, 1998-99**

TABLE 58. Objectives of Expenditures in the Social Sciences and Humanities, by Department or Agency											
Department or agency	Advance- ment of science	Communi- cations	Energy & fuels					Environmental issues			
			Conser- vation	Fossil fuels	Hydro electric power	Renewable resources	Other	Air	Land	Water	Other
in thousands of dollars											
Agriculture	-	-	-	-	-	-	-	-	-	-	12
Consumer and Corporate Affairs	93	-	-	-	-	-	-	-	-	-	-
Culture, Heritage and Citizenship	-	-	-	-	-	-	-	-	-	-	-
Education and Training	-	-	-	-	-	-	-	-	-	-	-
Energy and Mines	-	-	-	-	-	-	-	-	-	-	-
Family Services	-	-	-	-	-	-	-	-	-	-	-
Health (1)	-	-	-	-	-	-	-	-	-	-	-
Industry, Trade and Tourism	-	-	-	-	-	-	-	-	-	-	-
Justice	-	-	-	-	-	-	-	-	-	-	-
Labour	-	-	-	-	-	-	-	-	-	-	-
Manitoba Bureau of Statistics	-	-	-	-	-	-	-	-	-	-	-
Rural Development	-	-	-	-	-	-	-	-	-	-	12
Urban Affairs	-	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>93</b>	-	-	-	-	-	-	-	-	-	-

Department or agency	Health	Industrial & economic development					Other
		Agriculture	Fisheries	Forestry	Manufacturing	Minerals	
in thousands of dollars							
Agriculture	-	420	-	-	-	-	-
Consumer and Corporate Affairs	-	-	-	-	-	-	-
Culture, Heritage and Citizenship	-	-	-	-	-	-	-
Education and Training	-	-	-	-	-	-	-
Energy and Mines	-	-	-	-	-	-	765
Family Services	2,183	-	-	-	-	80	-
Health (1)	-	-	-	-	-	-	-
Industry, Trade and Tourism	-	-	-	-	-	-	-
Justice	-	-	-	-	-	-	817
Labour	-	-	-	-	-	-	-
Manitoba Bureau of Statistics	-	-	-	-	-	-	-
Rural Development	-	-	-	-	-	-	-
Urban Affairs	-	-	-	-	-	80	1,582
<b>Total</b>	<b>2,183</b>	<b>420</b>	-	-	-	-	-

Department or agency	Social development				Transportation	Wildlife	Other	Total
	Culture, sport & recreation	Education	Human resources	Urban & regional studies				
in thousands of dollars								
Agriculture	-	-	-	-	-	-	-	420
Consumer and Corporate Affairs	-	-	-	-	-	-	-	194
Culture, Heritage and Citizenship	3,791	-	48	-	-	-	-	3,944
Education and Training	-	7,775	-	-	-	-	-	7,775
Energy and Mines	-	-	-	-	-	-	-	312
Family Services	-	-	-	-	-	-	-	2,183
Health (1)	-	-	-	-	-	-	-	845
Industry, Trade and Tourism	-	-	-	-	-	-	-	416
Justice	-	-	673	-	-	-	-	673
Labour	-	-	-	-	-	-	-	817
Manitoba Bureau of Statistics	-	-	-	100	-	-	-	100
Rural Development	-	-	-	135	-	-	-	135
Urban Affairs	-	-	-	-	-	-	-	-
<b>Total</b>	<b>3,791</b>	<b>7,775</b>	<b>721</b>	<b>235</b>	<b>922</b>	-	-	<b>17,814</b>

(1) Includes the Manitoba Health Research Council

TABLE 59. Objectives of Expenditures in the Social Sciences and Humanities, by Activity, 1998-99

Objective	Intramural		Extramural		Total
	=====		=====		
	Research and development	Related Scientific activities	Research and development	Related scientific activities	
in thousands of dollars					
Advancement of science	93	-	-	-	93
Communications	-	-	-	-	-
Energy and fuels:					
Conservation	-	-	-	-	-
Fossil fuels	-	-	-	-	-
Hydro electric energy	-	-	-	-	-
Renewable resources	-	-	-	-	-
Other	-	-	-	-	-
Sub-total	-	-	-	-	-
Environmental issues:					
Air	-	-	-	-	-
Land	-	-	-	-	-
Water	-	-	-	-	-
Other	-	12	-	-	12
Sub-total	-	12	-	-	12
Health	63	50	220	1,850	2,183
Industrial and economic development:					
Agriculture	-	213	134	73	420
Fisheries	-	-	-	-	-
Forestry	-	-	-	-	-
Manufacturing	-	80	-	-	80
Minerals	-	-	-	-	-
Other	-	1,458	-	124	1,582
Sub-total	-	1,751	134	197	2,082
Social development:					
Culture, sport and recreation	-	3,704	4	83	3,791
Education	74	7,113	75	513	7,775
Human resources	-	673	-	48	721
Urban and regional studies	-	135	-	100	235
Other	-	823	-	99	922
Sub-total	74	12,448	79	843	13,444
Transportation	-	-	-	-	-
Wildlife	-	-	-	-	-
Other	-	-	-	-	-
<b>Total</b>	<b>230</b>	<b>14,261</b>	<b>433</b>	<b>2,890</b>	<b>17,814</b>

**TABLE 60. Total Expenditures in the Social Sciences and Humanities, by Activity and Performing Sector, 1999-2000 Estimates**

Activity	Intramural	Business Enterprise	Higher Education	Hospitals and health organizations	Industrial Technology Centre	Other	Total
in thousands of dollars							
<b>Research and development (R&amp;D)</b>							
Current expenditures:							
In-house R&D	220	...	...	...	...	...	220
R&D contracts	-	75	-	-	-	4	79
R&D grants and contributions	...	-	223	25	-	73	321
Research fellowships	-	-	125	25	-	-	150
Admin of extramural R&D programs	50	...	...	...	...	...	50
Sub-total current R&D	270	75	348	50	-	77	820
Capital expenditures	2	...	...	...	...	...	2
<b>Total R&amp;D</b>	<b>272</b>	<b>75</b>	<b>348</b>	<b>50</b>	<b>-</b>	<b>77</b>	<b>822</b>
<b>Related scientific activities (RSA)</b>							
Current expenditures	14,508	173	100	1,850	-	587	17,218
Admin of extramural RSA programs	33	...	...	...	...	...	33
Sub-total current RSA	14,541	173	100	1,850	-	587	17,251
Capital expenditures	126	...	...	...	...	...	126
<b>Total RSA</b>	<b>14,667</b>	<b>173</b>	<b>100</b>	<b>1,850</b>	<b>-</b>	<b>587</b>	<b>17,377</b>
<b>Total</b>	<b>14,939</b>	<b>248</b>	<b>448</b>	<b>1,900</b>	<b>-</b>	<b>664</b>	<b>18,199</b>

**TABLE 61. Total Expenditures in the Social Sciences and Humanities, by Department or Agency and Performing Sector, 1999-2000 Estimates**

Department or agency	Intramural	Business Enterprise	Higher Education	Hospitals and health organizations	Industrial Technology Centre	Other	Total
in thousands of dollars							
Agriculture	191	-	123	-	-	-	314
Consumer and Corporate Affairs	202	-	-	-	-	-	202
Culture, Heritage and Citizenship	4,090	83	-	-	-	44	4,217
Education and Training	7,310	75	-	-	-	513	7,898
Energy and Mines	-	-	-	-	-	-	-
Family Services	86	-	-	-	-	-	86
Health (1)	117	-	225	1,900	-	-	2,242
Industry, Trade and Tourism	721	90	-	-	-	34	845
Justice	443	-	-	-	-	-	443
Labour	721	-	-	-	-	-	721
Manitoba Bureau of Statistics	920	-	-	-	-	-	920
Rural Development	-	-	100	-	-	-	100
Urban Affairs	138	-	-	-	-	73	211
<b>Total</b>	<b>14,939</b>	<b>248</b>	<b>448</b>	<b>1,900</b>	<b>-</b>	<b>664</b>	<b>18,199</b>

(1) Includes the Manitoba Health Research Council

**TABLE 62. Total Expenditures in the Social Sciences and Humanities, by Department or Agency and Activity, 1999-2000 Estimates**

Department or agency	Research and development			Related scientific activities			Total
	=====			=====			
	Current	AEP(1)	Capital	Current	AEP(1)	Capital	
in thousands of dollars							
Agriculture	123	-	-	191	-	-	314
Consumer and Corporate Affairs	-	-	-	202	-	-	202
Culture, Heritage and Citizenship	99	-	-	3,992	-	126	4,217
Education and Training	135	50	-	7,713	-	-	7,898
Energy and Mines	-	-	-	-	-	-	-
Family Services	-	-	-	86	-	-	86
Health (2)	340	-	2	1,900	-	-	2,242
Industry, Trade and Tourism	-	-	-	845	-	-	845
Justice	-	-	-	443	-	-	443
Labour	-	-	-	721	-	-	721
Manitoba Bureau of Statistics	-	-	-	920	-	-	920
Rural Development	-	-	-	100	-	-	100
Urban Affairs	73	-	-	105	33	-	211
Total	770	50	2	17,218	33	126	18,199

(1) Administration of extramural programs

(2) Includes the Manitoba Health Research Council

**TABLE 63. Total Expenditures on R&D in the Social Sciences and Humanities, by Department or Agency and Performing Sector, 1999-2000 Estimates**

Department or agency	Intramural	Business Enterprise	Higher Education	Hospitals and health organizations	Industrial Technology Centre	Other	Total
in thousands of dollars							
Agriculture	-	-	123	-	-	-	123
Consumer and Corporate Affairs	-	-	-	-	-	-	-
Culture, Heritage and Citizenship	95	-	-	-	-	4	99
Education and Training	110	75	-	-	-	-	185
Energy and Mines	-	-	-	-	-	-	-
Family Services	-	-	-	-	-	-	-
Health (1)	67	-	225	50	-	-	342
Industry, Trade and Tourism	-	-	-	-	-	-	-
Justice	-	-	-	-	-	-	-
Labour	-	-	-	-	-	-	-
Manitoba Bureau of Statistics	-	-	-	-	-	-	-
Rural Development	-	-	-	-	-	-	-
Urban Affairs	-	-	-	-	-	73	73
<b>Total</b>	<b>272</b>	<b>75</b>	<b>348</b>	<b>50</b>	<b>-</b>	<b>77</b>	<b>822</b>

(1) Includes the Manitoba Health Research Council



**TABLE 64. Personnel Engaged in Scientific Activities in the Social Sciences and Humanities, by Department or Agency and Activity, 1999-2000 Estimates**

Department or agency	Intramural scientific activities							
	=====							
	Scientific & Professional		Technical		Other		Total	
	R&D	RSA	R&D	RSA	R&D	RSA	R&D	RSA
	person-years							
Agriculture	-	2	-	1	-	-	-	3
Consumer and Corporate Affairs	-	2	-	-	-	1	-	3
Culture, Heritage and Citizenship	2	30	-	5	-	18	2	53
Education and Training	4	82	-	10	-	13	4	105
Energy and Mines	-	-	-	-	-	-	-	-
Family Services	-	1	-	-	-	-	-	1
Health (1)	1	1	-	-	-	-	1	1
Industry, Trade and Tourism	-	9	-	-	-	1	-	10
Justice	-	4	-	1	-	1	-	6
Labour	-	8	-	1	-	2	-	11
Manitoba Bureau of Statistics	-	11	-	-	-	1	-	12
Rural Development	-	-	-	-	-	-	-	-
Urban Affairs	-	-	-	2	-	-	-	2
<b>Total</b>	<b>7</b>	<b>150</b>	<b>-</b>	<b>20</b>	<b>-</b>	<b>37</b>	<b>7</b>	<b>207</b>

Department or agency	Administration of extramural programs							
	=====							
	Scientific & Professional		Technical		Other		Total	
	R&D	RSA	R&D	RSA	R&D	RSA	R&D	RSA
	person-years							
Agriculture	-	-	-	-	-	-	-	-
Consumer and Corporate Affairs	-	-	-	-	-	-	-	-
Culture, Heritage and Citizenship	-	-	-	-	-	-	-	-
Education and Training	1	-	-	-	-	-	1	-
Energy and Mines	-	-	-	-	-	-	-	-
Family Services	-	-	-	-	-	-	-	-
Health (1)	-	-	-	-	-	-	-	-
Industry, Trade and Tourism	-	-	-	-	-	-	-	-
Justice	-	-	-	-	-	-	-	-
Labour	-	-	-	-	-	-	-	-
Manitoba Bureau of Statistics	-	-	-	-	-	-	-	-
Rural Development	-	-	-	-	-	-	-	-
Urban Affairs	-	-	-	-	-	-	-	-
<b>Total</b>	<b>1</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1</b>	<b>-</b>

Department or agency	Total scientific activities							
	=====							
	Scientific & Professional		Technical		Other		Total	
	R&D	RSA	R&D	RSA	R&D	RSA	R&D	RSA
	person-years							
Agriculture	-	2	-	1	-	-	-	3
Consumer and Corporate Affairs	-	2	-	-	-	1	-	3
Culture, Heritage and Citizenship	2	30	-	5	-	18	2	53
Education and Training	5	82	-	10	-	13	5	105
Energy and Mines	-	-	-	-	-	-	-	-
Family Services	-	1	-	-	-	-	-	1
Health (1)	1	1	-	-	-	-	1	1
Industry, Trade and Tourism	-	9	-	-	-	1	-	10
Justice	-	4	-	1	-	1	-	6
Labour	-	8	-	1	-	2	-	11
Manitoba Bureau of Statistics	-	11	-	-	-	1	-	12
Rural Development	-	-	-	-	-	-	-	-
Urban Affairs	-	-	-	2	-	-	-	2
<b>Total</b>	<b>8</b>	<b>150</b>	<b>-</b>	<b>20</b>	<b>-</b>	<b>37</b>	<b>8</b>	<b>207</b>

(1) Includes the Manitoba Health Research Council



TABLE 65. Objectives of Expenditures in the Social Sciences and Humanities, by Department or Agency, 1999-2000 Estimates

Department or agency	Advance- ment of science	Communi- cations	Energy & fuels					Environmental issues			
			Conser- vation	Fossil fuels	Hydro electric power	Renewable resources	Other	Air	Land	Water	Other
in thousands of dollars											
Agriculture	-	-	-	-	-	-	-	-	-	-	-
Consumer and Corporate Affairs	-	-	-	-	-	-	-	-	-	-	-
Culture, Heritage and Citizenship	95	-	-	-	-	-	-	-	-	-	12
Education and Training	-	-	-	-	-	-	-	-	-	-	-
Energy and Mines	-	-	-	-	-	-	-	-	-	-	-
Family Services	-	-	-	-	-	-	-	-	-	-	-
Health (1)	-	-	-	-	-	-	-	-	-	-	-
Industry, Trade and Tourism	-	-	-	-	-	-	-	-	-	-	-
Justice	-	-	-	-	-	-	-	-	-	-	-
Labour	-	-	-	-	-	-	-	-	-	-	-
Manitoba Bureau of Statistics	-	-	-	-	-	-	-	-	-	-	-
Rural Development	-	-	-	-	-	-	-	-	-	-	-
Urban Affairs	-	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>95</b>	-	-	-	-	-	-	-	-	-	<b>12</b>

Department or agency	Health	Industrial & economic development					
		Agriculture	Fisheries	Forestry	Manufacturing	Minerals	Other
in thousands of dollars							
Agriculture	-	314	-	-	-	-	-
Consumer and Corporate Affairs	-	-	-	-	-	-	-
Culture, Heritage and Citizenship	-	-	-	-	-	-	-
Education and Training	-	-	-	-	-	-	-
Energy and Mines	-	-	-	-	-	-	-
Family Services	-	-	-	-	-	-	-
Health (1)	2,242	-	-	-	-	-	-
Industry, Trade and Tourism	-	-	-	-	80	-	765
Justice	-	-	-	-	-	-	-
Labour	-	-	-	-	-	-	-
Manitoba Bureau of Statistics	-	-	-	-	-	-	920
Rural Development	-	-	-	-	-	-	-
Urban Affairs	-	-	-	-	-	-	-
<b>Total</b>	<b>2,242</b>	<b>314</b>	-	-	<b>80</b>	-	<b>1,685</b>

Department or agency	Social development					Transportation	Wildlife	Other	Total
	Culture, sport & recreation	Education	Human resources	Urban & regional studies	Other				
in thousands of dollars									
Agriculture	-	-	-	-	-	-	-	-	314
Consumer and Corporate Affairs	-	-	-	-	202	-	-	-	202
Culture, Heritage and Citizenship	4,070	-	40	-	-	-	-	-	4,217
Education and Training	-	7,898	-	-	-	-	-	-	7,898
Energy and Mines	-	-	-	-	-	-	-	-	-
Family Services	-	-	-	-	86	-	-	-	86
Health (1)	-	-	-	-	-	-	-	-	2,242
Industry, Trade and Tourism	-	-	-	-	-	-	-	-	845
Justice	-	-	-	-	443	-	-	-	443
Labour	-	-	721	-	-	-	-	-	721
Manitoba Bureau of Statistics	-	-	-	-	-	-	-	-	920
Rural Development	-	-	-	100	-	-	-	-	100
Urban Affairs	-	-	-	211	-	-	-	-	211
<b>Total</b>	<b>4,070</b>	<b>7,898</b>	<b>761</b>	<b>311</b>	<b>731</b>	-	-	-	<b>18,199</b>

(1) Includes the Manitoba Health Research Council

TABLE 66. Objectives of Expenditures in the Social Sciences and Humanities, by Activity, 1999-2000 Estimates

Objective	Intramural		Extramural		Total
	Research and development	Related scientific activities	Research and development	Related Scientific Activities	
in thousands of dollars					
Advancement of science	95	-	-	-	95
Communications	-	-	-	-	-
Energy and fuels:					
Conservation	-	-	-	-	-
Fossil fuels	-	-	-	-	-
Hydro electric energy	-	-	-	-	-
Renewable resources	-	-	-	-	-
Other	-	-	-	-	-
Sub-total	-	-	-	-	-
Environmental issues:					
Air	-	-	-	-	-
Land	-	-	-	-	-
Water	-	-	-	-	-
Other	-	12	-	-	12
Sub-total	-	12	-	-	12
Health	67	50	275	1,850	2,242
Industrial and economic development:					
Agriculture	-	191	123	-	314
Fisheries	-	-	-	-	-
Forestry	-	-	-	-	-
Manufacturing	-	80	-	-	80
Minerals	-	-	-	-	-
Other	-	1,561	-	124	1,685
Sub-total	-	1,832	123	124	2,079
Social development:					
Culture, sport and recreation	-	3,983	4	83	4,070
Education	110	7,200	75	513	7,898
Human resources	-	721	-	40	761
Urban and regional studies	-	138	73	100	311
Other	-	731	-	-	731
Sub-total	110	12,773	152	736	13,771
Transportation	-	-	-	-	-
Wildlife	-	-	-	-	-
Other	-	-	-	-	-
Total	272	14,667	550	2,710	18,199



## **APPENDIX**



## **The Respondents**

The following Manitoba government departments and agencies are currently involved in scientific activities. The persons named for each department coordinates the reporting of science expenditures. We wish to thank the co-ordinators and those assisting them for their time and efforts in providing these statistics.

### **Agriculture**

Co-ordinator: Ms. S. Derrett

Tel. (204) 945-3667

Fax (204) 948-2844

The Program and Policy Analysis Branch reports both natural and social science expenditures for the department.

For fiscal year 1998/99, \$1.9 million was granted under the Agri-Food Research & Development Initiative (ARDI) to various researchers at the University of Manitoba. When combined with the department's usual grant to the University, Manitoba Agriculture's research allocation would increase in the 1998/99 year to \$3.8 million.

In the natural science, research and development (R&D) makes up 70% of the total expenditures. Ninety-nine percent of R&D expenditures are extramural with 61% supporting agricultural research programs at the University of Manitoba. Related scientific activity (RSA) expenditures are performed intramurally and extramurally. The activities concentrate on technical surveys and special services and studies.

Social science expenditures include a research grant to the University of Manitoba supporting agricultural economics and farm business management while intramural activities address policy and program development.

Grants through the Sustainable Development Innovations Fund are administered by this department to support sustainable development in agriculture.

### **Consumer and Corporate Affairs**

Co-ordinator: Mr. I. Anderson

Tel. (204) 945-7892

Fax (204) 948-2268

The Research and Planning Branch reports social science expenditures for the department. Activities are performed intramurally, mostly allocated to special services and studies, and include projects such as gasoline price surveys, critical reviews of studies and development of legislation.

### **Culture, Heritage and Citizenship**

Co-ordinator: Ms. A. Willborn

Tel. (204) 945-4286

The department reports both natural and social science expenditures.

Natural science expenditures, which make up 7% of the departments' science expenditures, are reported by the Manitoba Museum of Man and Nature - Natural History Division. All activities are performed intramurally and are related scientific activities.

A number of units report social science activities - Historic Resources Branch, Public Library Services, the Provincial Archives of Manitoba, Recreation and Wellness Promotion Branch as well as the Manitoba Museum of Man and Nature.

Ninety-seven percent of the social science activities are performed intramurally, with 98% of those expenditures supporting related scientific activities.

Culture, Heritage and Citizenship is the government's second largest supporter of related scientific activities in the social sciences.

## **Education and Training**

Co-ordinator: Ms. J. Britton

Tel. (204) 945-6178

Fax (204) 948-2010

Manitoba Education and Training reports social science activities for the department. Ninety-two percent of these activities are performed intramurally and are mainly classified as related scientific activities. These activities involve education reform, curriculum development, time allotment survey, school achievement indicators program and learning technologies.

One percent of the expenditures are R&D activities performed extramurally. The R&D activities involve special education review and community needs assessment.

Education and Training is the largest social science department.

## **Energy and Mines**

Co-ordinator: Ms. C. Kaszycki

Tel. (204) 945-6549

The department reports natural science activities.

In the natural sciences, the Petroleum and Energy, Geological Services, and Marketing branches report all activities under related scientific activities. Eighty-eight percent of the related scientific activities involves technical surveys, with the majority of expenditures supporting geological surveys and investigations.

## **Environment**

Co-ordinator: Mr. E. Kucera

Tel. (204) 945-7088

Fax (204) 948-2357

Natural science expenditures are reported by six branches: Water Quality Management, Administration, Environment Management, Terrestrial Quality Management, Air Quality Management and Sustainable Development Innovations Fund.

Ninety-eight percent of the total expenditures are related scientific activities of which 50% are performed intramurally and mostly support technical surveys. The Environmental Sciences Centre now operates as a private-public partnership under the leadership of a private company, therefore the payments for laboratory services are now reported under Business Enterprise sector.

The Sustainable Development Innovations Fund (SDIF) provides funding for the development, implementation and promotion of innovative projects which support sustainable development.

## **Family Services**

Co-ordinator: Mr. H. Stevens

Tel. (204) 945-8423

Fax (204) 945-2156

The Policy and Planning Branch reports social science activities for the department. Sixty-eight percent of these activities are performed intramurally and are classified as related scientific activities.



## **Health**

Co-ordinator: Mr. G. Fiorino

Tel. (204) 788-2508

The department reports both natural and social science activities.

Scientific expenditures for this department are reported by the Budget Services (formerly the Finance and Management Services Division), External Programs and Operations Health Programs, Public Health Branch and Selkirk Mental Health Centre (SMHC).

The Budget Services Division provides funding for health policy evaluation and research initiatives, as well as for initiatives to support innovation and improvement in the health services system. The External Programs and Operations Health Programs have ongoing applied research projects related to design and implementation of mental health reform initiatives.

## **Highways and Transportation**

Co-ordinator: Mr. P. Rochon

Tel. (204) 945-3887

Fax (204) 945-5115

Materials and Research, and Transportation Policy, Planning and Development report natural science activities. Ninety-seven percent of the activities are performed intramurally and involve special services and studies. The research and development activities support the Transportation Association of Canada setting standards relating to highway design, not only for construction but also for other areas such as traffic control standards.

## **Industry, Trade and Tourism**

Co-ordinator: Dr. R. Humble

Tel. (204) 945-0127

Fax (204) 945-1354

The department reports both natural and social activities.

Natural science activities make up 87% of the department's response. Of this 87%, 83% of the activities are for research and development. Activities are split 3% intramural and 97% extramural with 54% of the extramural support going to the Industrial Technology Centre (formerly the Economic Innovation and Technology Council). Units reporting are Finance and Administration, Research and Economic Services and Industry Development.

Social science activity is reported by the Research and Economic Services and Tourism Initiative Programs (Tourism Initiative will report under 'Culture, Heritage and Citizenship' next survey). Their activities include analysis and special studies.

Expenditures on S&T in Industry, Trade and Tourism have declined since 1995-96 from a total of \$ 10.1 million to \$ 4.3 million in 1997-98. This is due, mainly, to a restructuration of the Industry Development Branch.

## **Justice**

Co-ordinator: Mr. P.G. Sinnott

Tel. (204) 945-2880

Fax (204) 945-6692

The Policy, Planning and Special Projects Branch researches existing literature, legislation, and statistical information, in order to formulate policy option papers and briefing materials.

**Labour**

Co-ordinator: Ms. G. Segal

Tel. (204) 945-4889

The department reports both natural and social activities. Natural science expenditures, which make up for 54% of the departments' science expenditures, are reported by the Workplace Safety and Health Division.

The activities of the Labour/Management Services Division (reporting social science expenditures) include providing research, evaluation, policy analysis development, legislative and regulatory development and computerized information system development, as well as providing support and research assistance to departmental advisory boards and committees.

**Manitoba Bureau of Statistics**

Co-ordinator: Mr. D. Greenwood

Tel. (204) 945-2989

Fax (204) 945-0695

The Bureau is the data collection agency of the provincial government and as such assumes responsibility for collecting, compiling, analysing, abstracting and publishing statistical information relating to the commercial, industrial, financial, social, economic, and general activities and conditions of the province and persons in the province. All activities are in the social sciences and are performed intramurally.

**Natural Resources**

Co-ordinator: Ms. K. Hepburn

Tel. (204) 945-8868

Several branches of the department are involved in scientific activities - Land Information Centre, Fisheries, Forestry, Parks and Natural Areas, Groundwater Management, and Surface Water Management. At the time of preparation of this report, responses had not been received from Water Resources Branch and values for 1998-99 are based on estimates provided in the previous submission.

All expenditures of the department are natural sciences; 97% are RSA of which 66% are in support of technical surveys.

**Rural Development**

Co-ordinator: Mr. B. Grodzik

Tel. (204) 945-5720

Fax (204) 945-5059

The Corporate Planning and Business Development Branch reports social science expenditures for the department.

The extramural expenditures support research investigations at the Rural Development Institute (Brandon University).

**Urban Affairs**

Co-ordinator: Ms. A. Litwin

Tel. (204) 945-3866

Fax (204) 945-1249

The Policy & Legislation Unit and Finance & Corporate Planning Unit report social science expenditures for the department. The activities include analysis and policy development.



## INDICATORS OF PROVINCIAL SCIENTIFIC ACTIVITIES

1. Gross Domestic Expenditures on R&D in Canada, by Performing Sector, by Province, 1997<sup>(1)</sup>

Province	Federal Government	Provincial Government	Provincial research organization	Business enterprise	Higher education	Private non-profit	All sectors
in millions of dollars							
Newfoundland	23	4	-	11	50	-	88
Prince Edward Island	9	-	-	4	4	-	17
Nova Scotia	70	5	2	59	103	1	240
New Brunswick	29	2	2	58	41	1	133
Québec <sup>(1)</sup>	215	48	11	2,601	980	32	3,887
Ontario <sup>(2)</sup>	305	47	10	4,494	1,287	109	6,252
<b>Manitoba</b>	<b>57</b>	<b>1</b>	<b>-</b>	<b>107</b>	<b>111</b>	<b>14</b>	<b>290</b>
Saskatchewan	70	3	8	57	110	-	248
Alberta	93	19	25	531	306	10	984
British Columbia	82	28	-	598	285	5	998
NCR - Québec	19	...	...	...	...	...	19
NCR - Ontario	728	...	...	...	...	...	728
<b>Canada <sup>(3)</sup></b>	<b>1,705</b>	<b>157</b>	<b>58</b>	<b>8,520</b>	<b>3,277</b>	<b>172</b>	<b>13,889</b>

2. Gross Domestic Expenditures on R&D in Canada, by Funding Sector, by Province, 1997<sup>(1)</sup>

Province	Federal government	Provincial government	Provincial research organization	Business enterprise	Higher education	Private non-profit	Foreign	All sectors
in millions of dollars								
Newfoundland	40	4	-	17	23	2	2	88
Prince Edward Island	11	1	-	3	1	1	-	17
Nova Scotia	107	12	-	52	49	4	16	240
New Brunswick	41	9	-	61	15	5	2	133
Québec <sup>(1)</sup>	530	231	-	2,328	454	88	256	3,887
Ontario <sup>(2)</sup>	766	251	-	3,151	496	230	1,358	6,252
<b>Manitoba</b>	<b>96</b>	<b>16</b>	<b>-</b>	<b>98</b>	<b>49</b>	<b>22</b>	<b>9</b>	<b>290</b>
Saskatchewan	94	27	-	57	59	6	5	248
Alberta	196	103	-	476	100	26	83	984
British Columbia	211	67	-	444	107	29	140	998
NCR - Québec	19	-	-	-	-	-	-	19
NCR - Ontario	712	1	-	15	-	-	-	728
<b>Canada <sup>(3)</sup></b>	<b>2,828</b>	<b>722</b>	<b>-</b>	<b>6,702</b>	<b>1,353</b>	<b>413</b>	<b>1,871</b>	<b>13,889</b>

<sup>(1)</sup> "Estimates of Canadian Research and Development Expenditures (GERD), Canada 1988 to 1999 and by Province 1988 to 1997", Science, Innovation and Electronic Information Division, Statistics Canada, November 1999, ST-99-08.

<sup>(2)</sup> Includes the Yukon and Northwest Territories.

<sup>(3)</sup> Federal Government excludes expenditures performed in the National Capital Region

### 3. Total Budget and Scientific Expenditures of the Federal Government and the Provincial Governments, 1997-98

Province	Total Budget <sup>(1)</sup>	S&T Expenditures	R&D Expenditures	S&T Percent of Budget	R&D Percent of Budget
	in millions of dollars			percent	
Federal Government :					
Canada	149,555	5,449	3,194	3.6	2.1
Provincial Governments :					
Québec	41,281	..	208	..	0.5
Ontario	56,017	314	211	0.6	0.4
<b>Manitoba</b>	<b>5,370</b>	<b>40</b>	<b>7</b>	<b>0.7</b>	<b>0.1</b>
Saskatchewan	5,049	70 <sup>a</sup>	55 <sup>a</sup>	1.4 <sup>a</sup>	1.1 <sup>a</sup>
Alberta	10,900	178	126	1.6	1.2
British Columbia	20,395	263	89	1.3	0.4

<sup>(1)</sup> Taken from Budgetary Estimates of the Federal Government and of the Provincial Governments.

NOTE: The Province of Québec does not gather statistics on total science expenditures, only R&D are shown.

### 4. Provincial indicators

Province	Population January 1998 <sup>(1)</sup>		Provincial Gross Domestic Product Per capita 1997 <sup>(2)</sup>		Gross Domestic Expenditures on Research and Development, 1997 <sup>(3)</sup>		Provincial GERD / PGDP 1997 <sup>(3)</sup>	
	in thousands	rank	dollars	rank	in millions of dollars	rank	percent	rank
Newfoundland	549	9	19,818	10	88	9	0.8	9
Prince Edward Island	137	10	21,482	9	17	10	0.6	10
Nova Scotia	935	7	21,735	8	240	7	1.2	3
New Brunswick	754	8	22,627	7	133	8	0.8	8
Québec <sup>(4)</sup>	7,323	2	25,313	6	3,887	2	2.1	1
Ontario <sup>(4)</sup>	11,334	1	30,629	2	6,252	1	1.8	2
<b>Manitoba</b>	<b>1,136</b>	<b>5</b>	<b>25,745</b>	<b>5</b>	<b>290</b>	<b>5</b>	<b>1.0</b>	<b>5</b>
Saskatchewan	1,023	6	27,625	3	248	6	0.9	7
Alberta	2,871	4	35,203	1	984	4	1.0	4
British Columbia	3,993	3	27,385	4	998	3	0.9	6
<b>Canada<sup>(4)</sup></b>	<b>30,155</b>		<b>28,391</b>		<b>13,889</b>		<b>1.6</b>	

<sup>(1)</sup> Quarterly Demographic Statistics, Catalogue no. 91-002-XPB, Vol. 13, no. 1.

<sup>(2)</sup> Canadian Economic Observer, Catalogue no. 11-010-XPB, Monthly, October 1999.

<sup>(3)</sup> Science Statistics, Catalogue no. 88-001-XJB, Vol. 23, no. 6, November 1999.

<sup>(4)</sup> Includes the Yukon and the Northwest Territories.

\* Québec and Ontario GERD figures exclude Federal Government expenditures of \$747 million performed in the National Capital Region.

## 5. Higher Education

Province	Total research and development expenditures in the higher education sector, 1997-98 <sup>(1)</sup>			Sponsored research in universities, 1997-98 <sup>(2)</sup>		
	in millions of dollars	dollars per capita	rank	in millions of dollars	dollars per capita	rank
Newfoundland	50	91	7	27	49	7
Prince Edward Island	4	29	10	2	15	10
Nova Scotia	103	110	3	54	58	4
New Brunswick	41	54	9	26	34	9
Québec	980	134	1	542	74	1
Ontario	1287	114	2	791	70	3
<b>Manitoba</b>	<b>111</b>	<b>98</b>	<b>6</b>	<b>62</b>	<b>55</b>	<b>5</b>
Saskatchewan	110	108	4	51	50	6
Alberta	306	107	5	206	72	2
British Columbia	285	71	8	178	45	8
<b>Canada<sup>(2)</sup></b>	<b>3,277</b>	<b>109</b>		<b>1,939</b>	<b>64</b>	

<sup>(1)</sup> Science Statistics, Catalogue no. 88-001-XJB, Vol. 23, no. 7, November 1999.

<sup>(2)</sup> Financial Statistics of Universities and Colleges, 1997-98, Report 2.24, Canadian Association of University Business Officers.

## 6. Industry<sup>(1)</sup>

Province	R & D units	Total Intramural R&D Expenditures, 1997		Distribution of R & D Personnel, 1997	
	no.	in millions of dollars	dollars per capita	Professionals	Total
				FTE'S	
Newfoundland	90	12	22	109	183
Prince Edward Island	17	2	15	44	50
Nova Scotia	179	44	47	382	714
New Brunswick	146	31	41	240	419
Québec	3,421	2,422	331	14,539	24,926
Ontario	2,820	4,715	416	26,864	39,691
<b>Manitoba</b>	<b>221</b>	<b>96</b>	<b>85</b>	<b>526</b>	<b>1,102</b>
Saskatchewan	140	82	80	418	848
Alberta	663	522	182	2,473	4,040
British Columbia	864	593	149	4,174	6,486
<b>Canada<sup>(2)</sup></b>	<b>8,566</b>	<b>8,519</b>	<b>283</b>	<b>49,773</b>	<b>78,469</b>

<sup>(1)</sup> Science, Innovation and Electronic Information Division, Statistics Canada

<sup>(2)</sup> Includes the Yukon and Northwest Territories

## 7. Provincial Governments

Province	Total provincial expenditure on scientific activities, 1997-98 <sup>(1)</sup>			Total scientific expenditures of Provincial Research Organizations, 1997 <sup>(2)</sup>	
	in millions of dollars	dollars per capita	rank	in millions of dollars	rank
Newfoundland	...	...	...	...	...
Nova Scotia	...	...	...	10	5
New Brunswick	...	...	...	8	6
Québec <sup>(3)</sup>	...	...	...	34	2
Ontario <sup>(3)</sup>	314	28	5	26	3
<b>Manitoba</b>	<b>40</b>	<b>35</b>	<b>4</b>	<b>2</b>	<b>7</b>
Saskatchewan	70 <sup>a</sup>	68 <sup>a</sup>	1	18	4
Alberta	178	61	3	48	1
British Columbia	263	65	2	...	...
<b>Total</b>	...	...		<b>147</b>	

<sup>(1)</sup> Science, Innovation and Electronic Information Division, Statistics Canada,

<sup>(2)</sup> Science Statistics, Catalogue no. 88-001, Vol. 23, no. 1, April, 1999

<sup>(3)</sup> Includes the Science Institute of the Northwest Territories.

## 8. Expenditures of Provincial Governments on Scientific Activities, by Objective, 1997-98

Objective	Ontario	Manitoba	Saskatchewan <sup>a</sup>	Alberta	British Columbia
	in millions of dollars				
Advancement of science	82	--	1	15	2
Communications	2	--	--	-	2
Energy and fuels :					
Conservation	--	--	-	-	1
Fossil fuels	-	--	--	11	1
Hydro electric energy	-	-	-	-	--
Renewable resources	-	-	-	-	--
Other	-	-	--	2	--
Environmental issues :					
Air	7	--	--	1	17
Land	5	--	-	--	30
Water	18	1	1	11	19
Other	7	1	2	11	13
Health	67	5	8	46	23
Industrial and economic development :					
Agriculture	40	3	40	39	3
Fisheries	4	1	1	--	5
Forestry	8	1	2	4	74
Manufacturing	31	2	1	17	4
Minerals	6	4	3	--	6
Other	10	4	4	8	17
Social Development:					
Culture, sport and recreation	10	4	2	8	17
Education	3	8	1	--	13
Human resources	-	1	1	-	3
Urban and regional studies	1	--	--	-	2
Other	6	1	1	1	5
Transportation	3	3	2	4	1
Wildlife	2	--	--	--	5
Other	2	-	-	--	--
<b>Total</b>	<b>314</b>	<b>40</b>	<b>70</b>	<b>178</b>	<b>263</b>



## PROVINCIAL CO-ORDINATORS

Five provincial governments are currently sponsoring the Science and Innovation Surveys Section in the collection of similar scientific activity data. Below is a list of co-ordinators for the various sponsoring Departments/Ministries.

Mr. Mark Garscadden  
Manager, Science and Technology  
Ministry of Energy, Science and Technology  
56 Wellesley St. West,  
11<sup>th</sup> Floor,  
Toronto, Ontario  
M7A 2E7 Tel.: (416) 314-8211  
e-mail: [garscama@est.gov.on.ca](mailto:garscama@est.gov.on.ca)

Maria Fuccenecco  
Analyst, Science, Technology and  
Telecommunications Division  
Information, Science and Technology Agency  
PO box 9411 Stn Prov Govt  
Victoria, British Columbia  
V8W 9V1 Tel.: (250)387-5027  
e-mail: [maria.fuccenecco@gems3.gov.bc.ca](mailto:maria.fuccenecco@gems3.gov.bc.ca)

Mr. Dhiraj Seth  
Economic Policy Analyst, Policy Division  
Saskatchewan Economic & Co-operative Development  
800 - 1919 Saskatchewan Drive  
Regina, Saskatchewan  
S4P 3V7 Tel.: (306) 787-7069  
e-mail: [dhiraj.seth@ecd.gov.sk.ca](mailto:dhiraj.seth@ecd.gov.sk.ca)

Mme C. Charron  
Direction des statistiques sur les industries  
Institut de la statistique du Québec  
200, chemin Sainte-Foy  
Québec, Québec  
G1K 5T4 Tél.: (418) 691-2408  
e-mail: [christiane.charron@stat.gouv.qc.ca](mailto:christiane.charron@stat.gouv.qc.ca)

Dr. R. Humble  
Policy Advisor, Research and Economic Services  
Manitoba Industry, Trade and Tourism  
155 Carlton Street, Room 675  
Winnipeg, Manitoba  
R3C 3H8 Tel.: (204) 945-0127  
e-mail: [rhumble@itt.gov.mb.ca](mailto:rhumble@itt.gov.mb.ca)

Dr. Stephen Moran  
Alberta Science and Research Authority,  
9<sup>th</sup> Floor, Sterling Place  
9940-106 Street  
Edmonton, Alberta  
T5K 2P6 Tel.: (403)422-1065  
e-mail: [moran@sra.gov.ab.ca](mailto:moran@sra.gov.ab.ca)

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- 88-202-XPB      Industrial Research and Development 1997 Intentions (with 1996 preliminary estimates and 1995 actual expenditures)
- 88-204-XIB      Federal Scientific Activities 1997-98<sup>c</sup>(annual)
- 88-001-XIB      Science Statistics (monthly)

### **Volume 22**

- No. 1      The Provincial Research Organizations, 1996
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